THE APPLICATION OF COMMERCIAL MORTGAGE DERIVATIVES IN DUTCH INSTITUTIONAL INVESTMENT PORTFOLIOS

by

ELIAS THEUN WOUDENBERG

Master of Business Administration
Nijenrode, The Netherlands Business School
1989

Submitted to the Department of Architecture
in Partial Fulfillment of the Requirement for the Degree of

MASTER OF SCIENCE
in Real Estate Development

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

15 September 1994

Signature of Author _____

Elias Theun Woudenberg
Department of Architecture
August 5, 1994

Certified by _____

Blake Eagle, CRE
Chairman, MIT Center for Real Estate
Thesis Supervisor

Accepted by _____

Professor William C. Wheaton
Chairman, Interdepartmental Degree Program in Real Estate Development

THE APPLICATION OF COMMERCIAL MORTGAGE DERIVATIVES IN DUTCH INSTITUTIONAL INVESTMENT PORTFOLIOS

by

ELIAS THEUN WOUDENBERG

Submitted to the Department of Architecture on August 5, 1994
in partial fulfillment of the requirements for the Degree of
Master of Science in Real Estate Development

ABSTRACT

This paper explores the potential application of U.S. commercial mortgage-backed securities in the investment portfolios of Dutch institutional investors. Commercial mortgage-backed securities are synthetic bonds derived from the cashflow of underlying assets; therefore, they are derivative securities. To understand the potential risks and returns of these securities, it is essential to comprehend the performance characteristics of the underlying assets: commercial mortgages. In turn, commercial mortgages are influenced by the dynamics of U.S. commercial real estate. Therefore, this paper contains an assessment of three closely connected markets, evaluated by mid-1994: the U.S. commercial space markets, the commercial mortgage markets, and the commercial mortgage-backed securities markets.

Chapter 1 describes the U.S. commercial space and mortgage markets. It describes how commercial real estate went through a period of drastic repricing in the early 1990s. Subsequently, it argues why there may be more upside potential than downward risk for building value in commercial real estate. Next, it reasons that there are several compelling factors pushing the commercial mortgage markets towards securitization, the process through which commercial mortgages can be restructured into commercial mortgage-backed securities.

Chapter 2 describes the process of commercial mortgage securitization in detail, and highlights past and future developments in this emerging market. The chapter is based on the view that real estate finance is undergoing a fundamental, long-term change: both equity and debt sources are shifting from private to public capital markets. Chapter 3 describes the risk and return characteristics of commercial mortgage-backed securities, making a distinction between investment-grade bonds and unrated high-yield securities.

Chapter 4 describes the strategic and tactical applications of commercial mortgage-backed securities. Next, it describes the strategies of Dutch institutional investors with respect to U.S. commercial real estate and fixed-income securities. Subsequently, it argues how commercial mortgage-backed securities may fit in Dutch institutional investment portfolios. Finally, the chapter suggests how to defend a portfolio of commercial mortgage-backed securities in times of volatility in the international capital markets; how to deal with a few specific aspects of international taxation; and how to market these hybrid securities to Dutch institutional investors.

Thesis Supervisor: Blake Eagle, CRE
Title: Chairman, MIT Center for Real Estate

CONTENTS

ACKNOWLEDGMENTS

On the Sunday morning before handing in this thesis at MIT, I would like to thank a few special people who contributed greatly to the success of this year in the United States. Foremost, my dear Amice. I have been very fortunate with her encouragement and mature perspective during the first nine months, when she lived in Berlin and we communicated by air mail, telephone and fax. Once she came to Boston, it was her energy and stimulating presence that made the final three months so colorful and warm.

I would like to acknowledge the exceptional people who made this thesis project a valuable experience: Lane Grijns, Jan Flinterman, Rob McSween, Al Niedan, Mitch Waisterlain, Wytze Prinsen, Buck Burnaman and René Kan at ING Capital in New York; Blake Eagle at MIT, a truly remarkable thesis advisor; and John Perkins, who so kindly invited me to a conference by Fabozzi & Partners.

Then, I would like to thank my dear parents Theun and Matty Woudenberg, who are always there - and were even here - with constructive suggestions, unconditional support and good advice. Also, I thank my sister Nakke Woudenberg and her fiancé Jan van der Torre, who sent inches of postcards of Dutch cows, Dutch mills, Dutch canals, Dutch bikes, Dutch flowers and Dutch beer - if they would not spend time on a bridge in Mystic Seaport, Connecticut. I am very fortunate to have such a loving and caring family.

It was very rewarding to meet so many interesting people at MIT and Harvard this year. Actually, it was not only rewarding; it cost a lot, too. In addition, the humor of several good friends in Holland contributed greatly to the joy of studying in Cambridge: Ferdinand van der Does, Manon Bloemer, Robert van Leeuwen, Robert Kurvers, Jurgen van Hellemont, Lucas van Gerwen and Maartje van Niedek, who brought much distraction with their visits to Beacon Hill; Douwe Lycklama à Nyeholt and Liesbeth Hamstra, who wrote such welcome letters; and Wim and Annemarie van der Torre, who, instead of subtracting, repeatedly added six timezones when calling to chat.

I am grateful to several wonderful people in New York, this remarkable city. I thank Suzy en Karl Oberwäger-Rothbart for their admirable energy and dear hospitality on Upper West Side; the Sisters of the Kolping Convent for their hospitality on Upper East Side; Jim Sidorchuk and Sue Toporowski for their hospitality in Stuyvesant; Hendrik and Gretchen Vroege for the congenial weekends in Larchmont Woods; and Regine Schade Laverge for inviting me as a Member to the Netherland-America Foundation. And finally, if it was not for this laptop, these pages would not have been written, really.

1.1 A RECENT HISTORY OF THE U.S. COMMERCIAL SPACE MARKETS

Overbuilt U.S. Commercial Space Markets

Between the early 1980s and the early 1990s, the U.S. commercial office space markets[1] went through a cycle of strong fluctuation. The aggregate supply or stock of space increased from approximately 2,000 million sf in 1980 to approximately 3,200 million sf by 1990[2]. One of the causes often cited for the construction boom of the 1980s was the fiscal incentive provided by the Economic Recovery Tax Act of 1981. The law gave significant tax advantages to owning real estate, by allowing substantial depreciation expenses in calculating fiscal income. Potential fiscal losses on real estate investments could be used to offset shareholder income.

The commercial real estate industry ran into a recession when the U.S. economy slowed down in the late 1980s, and when the Tax Reform Act of 1986 eliminated some of the fiscal incentives to owning property. The fiscal incentives - and other factors, such as a massive capital infusion to the real estate industry[3] - had driven the capital market demand for real estate far beyond the user demand for real estate, which resulted in overbuilt markets. By the early 1990s, the supply of space significantly exceeded the demand for space. By 1994, demand for commercial space still fell some 578 million sf short of supply, and the national vacancy rate floated in the vicinity of 18%[4]. Simply put, one out of five office buildings in the U.S. was superfluous.

Impact of Overbuilt Markets on Values

The impact of overbuilding on property values is clearly indicated by the Russell-NCREIF property index, a set of asset performance indicators composed of income and appreciation components on U.S. real estate. The 1994 office market subindex[5] shows that commercial real estate had performed at rolling four-quarter returns of -0.2%, -5.5% and -8.6% over the last ten, five and three years respectively.

---

1 For the specific purposes of this paper, commercial space is defined as office space. Thus, this definition does *not* include multi-family, warehousing or industrial space. However, the main theme of this paper - securitization of mortgages - may similarly apply to those asset types.

2 Assessment by Blake Eagle, Chairman M.I.T. Center for Real Estate (2 August 1994).

3 Sahling, Leonard G.: "Commercial Real Estate Today - Half Full or Half Empty?", *The Real Estate Finance Journal* (Fall 1993), pp 18-23.

4 Lynford, Lloyd: "Too Much, Too Soon - Money Is Rushing Back into Real Estate" *Barron's* (4 July 1994).

5 Brunette, David L.: "The Russell-NCREIF Real Estate Performance Report", *National Council of Real Estate Investment Fiducuaries/Frank Russell Company* (First Quarter 1994).

Although income returns for the office market were relatively stable at 7.0%, 7.2% and 7.9%, appreciation returns were as low as -6.8%, -12.0% and -15.5% over the same time period. These numbers can be explained by the fact that slowly expiring long-term leases were rolling into lower lease rates, while cap rates increased [6]. These two compounding factors resulted in significantly lower office asset values.

Causes for Overbuilding

The causes for overbuilding and, more generally, volatility in the real estate industry may be related to the implicit characteristics of the participants in the industry: lenders, developers, buildings and tenants[7]. First, the supply of new space may depend more on the availability of construction capital than on the demand for space. Thus, what really drives new construction of space is the availability of credit for construction and permanent financing from lenders.

This is linked to the behavior of the producers of new space: real estate developers. By their nature, real estate developers depend on the supply of new space. Therefore, they may tend to rationalize potentially unfavorable market conditions. Developing can be structured with limited downward risk. New projects can be organized as single-purpose limited liability companies, financed to a large extent with non-recourse capital from mortgage lenders. Moreover, finished projects are sold to investors on expectations about future rents and future discount rates. If the financing is available, real estate developers will build.

Because of the physical nature of real estate assets, new construction has long-lasting impacts on the space markets. The physical durability of real estate causes that the supply of space can only increase, not decrease - except for obsolescence, scrappage or natural disasters. Therefore, unlike in many other industries, excess supply cannot be adjusted downward to equal demand the next trading day. As a result, the space market is not cleared by price alone: some supply of space simply meets no demand, and no price is formed.

Buildings are exceedingly durable goods; therefore, vacancies caused by overbuilding are long-term structural problems. Vacancies can only be solved by new demand for space. Substantial new demand for space can only come from tenants who foresee long-term growth prospects for their businesses, because most leases are relatively long-term commitments[8]. Thus, the space markets are fundamentally driven by growth in the demand for space, which depends on prospects for economic growth and job creation.

---

6 Assessment by Blake Eagle, Chairman M.I.T. Center for Real Estate (5 August 1994).

7 Gardner, Robert J.: "The Causes and Consequences of Real Estate Investment Cycles", *Real Estate Finance* (Summer 1993), pp. 44-46.

8 Poorvu, William J.: "Note on Commercial Space Leases", *Harvard Business School*, Case 9-390-007 (1989).

1.2 A CURRENT OUTLOOK FOR U.S. COMMERCIAL SPACE MARKETS

The Industry At or Close to a Cyclical Low

By 1993-1994, the point was often made that the commercial real estate industry was at or close to a cyclical low[1]. Record-high stock of space, record-high vacancies and record-low office rents had resulted in a virtual lack of office projects under planning or construction. Additionally, with a nationwide vacancy rate around 18%, it was felt that rents signed for new leases were averaging around a natural bottom.

Recovery Driven by Demand for Space

As argued, fundamental recovery in overbuilt markets can only be driven by increased demand for space. Assuming zero to low construction of new office space until the next decade, vacancy may decline as demand for space increases. The following factors may drive the demand for commercial space[2]:

- **macro-economic**: prospects for modest future growth of the U.S. economy may favorably affect office employment and demand for office space in general;
- **meso-economic**: the key industries using leased office space (financial industries, service industries, professions[3]) show prospects for slow, stable long-term growth;
- **micro-economic**: with the long-term cost of office space at record-low levels, firms may be induced to lock in low rates with long-term leases, to increase office space per worker, and to upgrade from class-B and class-C to class-A office space.

There are also some important challenges for increasing office space demand :

- **meso-economic**: maturing manufacturing industries may be forced to continue overhead cost cutting. The key priority is often on cutting payroll and office rent;
- **micro-economic**: efficient layouts, space sharing and office hoteling techniques may be used to minimize space needs per worker and to push overhead costs;
- **technological**: new multi-media telecommunication and computer-aided technologies may impact industries, job growth opportunities and space usage per worker;
- **societal**: relocation to new, suburban office locations may solve central business district problems of traffic congestion, crime and a deteriorating infrastructure[4].

---

1 Kelly, High F.: "1994 Real Estate Market Forecast", Landauer Real Estate Counselors (1994).

2 Wheaton, William C.: "The U.S. Real Estate Market: An Economic Outlook for the 1990s", *Massachusetts Institute of Technology, Center for Real Estate* (1994).

3 Shilton, Leon: "The Eight Myths of Office Forecasting", *The Real Estate Finance Journal* (Winter 1994).

4 Bradley, Richard H. and Gayle L. Berens: "Center Cities", *Urban Land Institute*.

More Upside Potential than Downside Risk

Numerous projections can be made whether or not demand for space will increase. The actual growth in demand for space will depend on the strength of the upside and downside forces respectively. Certain asset types and metropolitan markets may need a relatively long recovery period before demand and supply are again in balance; other markets may have better prospects[5].

More importantly, so much vacant office space is available at present, that increased demand for space in and of itself may not be sufficient to raise rents and values quickly. When projecting an annual net absorption of approximately 45 million sf[6] at 2.5% stable economic growth, a reduction in the national vacancy rate requires time, and an increase in office rents may require even more time. In addition, new lease expirations involving tenants who currently pay above market rental rates may place a downward pressure on rents and values[7]. Yet the key point about the dynamics of the U.S. commercial space markets is that there may be more upside potential for improvement, than downward risk.

---

5 Lachman, M. Leanne: "The Demographics of Demand", *Schroder Real Estate Associates* (Fall 1992).

6 Lynford, Lloyd: "Too Much, Too Soon - Money Is Rushing Back into Real Estate" *Barron's* (4 July 1994).

7 Sahling, Leonard G.: "Commercial Real Estate Today, Half Full or Half Empty?", *The Real Estate Finance Journal* (Fall 1993), pp 18-23.

1.3 A RECENT HISTORY OF U.S. COMMERCIAL MORTGAGE MARKETS

The Link between Commercial Space Markets and Commercial Mortgage Markets

Commercial mortgage loans are debt instruments that finance commercial real estate businesses. The commercial mortgage markets are the key source of capital behind the development and supply of new space. Therefore, the recent history of the U.S. commercial mortgage markets is closely linked to that of the commercial space markets.

By 1993, approximately $991 billion was outstanding in commercial mortgages[1]. In the same year, commercial banks, life insurance companies and savings institutions reported no less than 8.3% of these loans as non-performing[2]. In other words, one out of twelve loans were in a default status in that very year. A mortgage is defined as non-performing if two or more payments (approximately 60 days) are delinquent, or if it has less than a break-even coverage ratio[3]. The amount of sub-performing loans was not exactly known, but must have been even more substantial. Informed market participants estimated that 30% of mortgages outstanding in 1993 (or $300 billion) may have been sub-performing[4].

The size of the commercial mortgage problem in the U.S. in the 1990s dates back to lending practices during the construction boom years. Commercial banks, insurance companies and savings and loans institutions were deeply committed to real estate lending; it was generally accepted that lending to commercial property would provide for high risk-adjusted yields. Particularly savings and loans institutions quickly built large portfolios of commercial mortgages, once the Garn-St. Germain Act of 1981 allowed them to make loans beyond merely residential real estate.

Private and institutional investors put up the balance of development funds, in the form of equity. Private equity investors were essentially driven by tax advantages. As stated, they could show low fiscal income from investments in real estate - or even fiscal losses that were deductable from personal shareholder income. Institutional equity investors were primarily driven by diversification motives for their substantial and growing investment portfolios, and by the generally accepted view that institutional quality property was a solid inflation hedge that could only increase in value over time. This turned out to be wrong.

---

1 Giliberto, Michael: "Commercial Mortgage-Backed Securities: Market Underpinnings", *Lehman Brothers* (June 1994).

2 Brueggemann, William B.: "Improving Conditions in the Commercial Mortgage Market", *The Real Estate Finance Journal* (Summer 1994), pp 17-21.

3 Smith, Daniel J.: "The Analysis of Distressed Commercial Real Estate", *Duff & Phelps Credit Rating Co.* (September 1992).

4 Statement by Buck Burnaman, Commercial Mortgage-Backed Securities Trader, ING Capital (5 August 1994).

Distressed Mortgage Markets

As argued before, the supply of equity and mortgage capital, not the demand for space, drove the development of new space. Too much capital available for construction drove the supply of space in excess of demand, and the space markets became overbuilt. As soon as projected demand and rents were not materialized, cashflow fell below projected levels; often below the level required for debt service. Asset values plummeted, equity positions were wiped out, and the mortgages turned into sub-performing or non-performing loans.

In addition to the quantity of mortgage money that chased real estate, the quality of the loans closed may also have been relatively low. Many of the commercial mortgage loans of the 1980s may have been overleveraged, underpriced and poorly underwritten, owing to intense competition among lenders[5].

Savings and Loans Institutions and the Resolution Trust Corporation

The government-insured savings and loans institutions were among the first to be severely hit by declining real estate values and distressed commercial mortgage portfolios. Under the Financial Institutions Reform, Recovery and Enactment Act of 1989, the Resolution Trust Corporation (RTC) was created to resolve the failed savings and loans institutions[6]. The congressional mandate of the RTC was to dispose of assets and liabilities at the highest price, in the shortest time, and with the least possible disruption to the private sector[7].

Many of these assets consisted of inventories of non-performing commercial mortgages and real estate owned (REO, assets to which the lenders had taken ownership through foreclosure of non-performing mortgages). By 1994, the RTC had divested the majority of its real estate-related assets at an overall sales recovery percentage of some 50% of original book value. Much of the RTC's real estate exposure was sold through privately placed bulk sales, through sealed-bid auctions of mortgage and real estate pools[8], as well as through securitized placements.

---

5 Ellson, Richard and John Mulligan of Donaldson, Lufkin & Jenrette: "Developments in Commercial Real Estate Securitization", *Capital Sources for Real Estate* (February 1994).

6 Sahling, Leonard M.: "Managing the Cleanup of the Thrift Crisis" *Real Estate Review* (Winter 1993).

7 Hagan, Robert K.: "The Cumbersome RTC Bid Process", *Real Estate Review* (Summer 1993), pp 63-69.

8 Cercone, Michael: "Real Estate Auctions as a Market-Clearing Mechanism for Repossessed Real Estate", *Massachusetts Institute of Technology, Center for Real Estate* (Thesis, 1991).

Commercial Banks, Insurance Companies and other Financial Institutions

Commercial banks, insurance companies and other financial institutions also adopted strategies to manage their troubled loan portfolios. Many decided to downsize or fully divest their real estate exposure[9]. By 1993, commercial banks owned $325 billion in commercial mortgages; insurance companies $210 billion; and other holders $105 billion[10]. Divestment strategies involved straight write-downs on the book value of troubled assets; loan restructuring[11&12] or workouts[13]; foreclosure of non-performing mortgages; or portfolio disposition through sales of mortgages and REO[14]. Perceived opportunity costs drove financial institutions to clean their balance sheets from real estate-related assets[15].

The first opportunity cost was **forgone earnings** on investments that could be made elsewhere. It was perceived that the benefits of holding onto real estate-related assets would not outweigh the benefits that could be derived from selling them and investing in other assets. In addition, many bank executives recognized that they lacked the expertise required for managing distressed assets, and did not want to allocate valuable management time to develop these abilities in-house. Under shareholder pressure, management was often forced to reposition as quickly as possible.

The second opportunity cost - compounding with the first - was that rating agencies would downgrade **credit ratings** based on problem assets. As a result, institutions would have to pay a higher cost for their own new debt financing. Insurance companies were under additional pressure from the insurance rating agencies, which monitor the risk levels associated with their debt obligations, versus their ability to pay potential claims.

The third opportunity cost - again, a compounding factor - arose from regulatory pressure. Commercial banks and insurance companies had to comply with **risk-based capital requirements** - financial standards on the amount of equity required to be associated with investments of different risk levels. For commercial banks, risk-based capital rules in accordance with the international Basle Accord went into effect by 1991. By 1993, the National Association of Insurance Commissioners established similar rules for insurance companies. The driving force for these regulations was to avoid potential insolvencies among financial institutions, and to protect policyholders and depositors.

---

9 Faggen, Ivan "Bank Real Estate Problem Assets - A Global Issue", *Arthur Andersen Real Estate Viewpoints* (June 1994).

10 Source: "Commercial Mortgage Alert, the Weekly Update on Secondary-Market Activity".

11 Jacobson, Kenneth M. and David L. Dlugie: "Balancing the Pain and the Gain: Lender Participation in Workouts", *Real Estate Review* (Spring 1993) pp. 32-36.

12 Pinover, Eugene A. and David E. Rabin: "Current Trends in Loan Restructurings", *The Real Estate Finance Journal* (Winter 1994), pp 49-53.

13 Sperantsas, Dean: "Workout Strategies for Distressed Properties", *Massachusetts Institute of Technology, Center for Real Estate* (M.Sc. Thesis, 1987).

14 Guenther, Daniel P. and Cari Turk: "Disposition Strategies in an Uncertain Market", *The Real Estate Finance Journal* (Fall 1993) pp. 4-12.

15 van Konynenburg, D. Michael and Sandra L. Tanen: "Selling Nonperforming Commercial Real Estate Loans", *The Real Estate Finance Journal* (Fall 1993) pp 39-41.

Acquisitions at Steep Discounts lead to more Upside Potential than Downward Risk

Troubled commercial mortgages and real estate assets were often divested as quickly as possible, while the realized prices may have been of secondary importance. Financial institutions sold at steep discounts to the historical cost of their assets. And given the large number of distressed properties for sale, there may have been little reason for active buyers to offer full investment value. Discounts typically amounted to 40-60% on non-performing loans, while sub-performing loans were sold at 60%-90% to book value[15].

Here, a clear distinction should be made between distressed owners and distressed buildings. Buying from a distressed owner may be quite attractive, if the building itself needs only a cheaper financing structure. Simply buying at a discount can make a project feasible. However, the reason for distress is often that the building itself is distressed: poor location, substantial deferred maintenance, environmental problems, inefficient systems or other factors. In such cases, repositioning the project may be more challenging.

Opportunistic Buyers

A number of opportunistic capital sources were established to acquire portfolios of under-performing assets at deep discounts[16]. These opportunistic buyers focused on properties that could either be sold at a quick profit, or repositioned in the market to realize a high rate of return over a longer term. The objective was to buy property below long-term investment values, structure the purchase so that the existing cash flow could cover debt service, and eventually sell the property at a higher price.

Many of these buyers were non-regulated Wall Street firms in partnership with real estate developers, asset management companies or pension fund advisors. In turn, their capital was often provided by pension funds, foreign institutional investors and hedge funds. A few opportunistic buying syndicates were publicly traded companies, exclusively in the business of acquiring trophy assets at depressed prices. Many so-called bottom-fishers were able to leverage the equity provided to them by their shareholders. Eventually, competition for high-quality properties would spur buyers to bid prices until they became in line again with long-term investment values. But until then, bottom-fishers could buy low during a deep-discount phase. The acquired assets often had more upside potential than downward risk.

---

15 Waisterlain, Mitch: "Whole Loan Securitization", *ING Capital* (1994).

16 Jacobson, Kenneth M.: "Acquiring and Financing Loan Portfolios", *Real Estate Review* (Spring 1994), pp. 21-26.

1.4 A CURRENT OUTLOOK FOR THE U.S. COMMERCIAL MORTGAGE MARKETS

The Gap between Maturing Debt and Capital Available for Refinancing

In the early 1990s, the withdrawal of the traditional capital sources from real estate lending caused a wide gap between maturing debt and capital available for refinancing. Owners had severe difficulties refinancing the 10-year maturity loans that were closed in the 1980s, and that would come due in the 1990s. To indicate the amount of debt maturing annually in the 1990s, loan expirations for 1994 were estimated at around $140 billion[1]. Restricted capital for refinancing existing projects was available from mortgage conduits and certain commercial banks. However, loan underwriting standards were more conservative in comparison to the late 1980s, which made it difficult to refinance on a dollar-for-dollar basis. Reduced supply of capital and large demand for refinancing had driven interest rates up, so the price of new real estate debt was high.

Conservative Underwriting Standards

Conservatism in loan underwriting standards[2] may have been caused by the lending experiences from the past decade. Although reliable data on commercial mortgage performance were not widely available, a 1994 study of 11,000 commercial real estate loans owned by Aetna, Equitable, New England Mutual, Prudential, Travelers and other life insurance companies assessed the riskiness of commercial mortgage loans. In this study, an aggregate average lifetime default percentage of more than 18% was found[3]. Thus, it was projected that one out of five loans would typically default at some point in its lifetime.

These following numbers illustrate the historical riskiness of commercial real estate lending. Of the defaulted loans, 46% had been foreclosed, while 54% had been resolved in some other manner. For the defaulted loans, a loss severity of 36% was calculated. Loss severity was defined as principal owed upon default, and calculated as property sales proceeds, plus property revenue, minus principal owned upon default, minus foregone interest, minus expenses. For the unforeclosed loans, a loss percentage of 18% was calculated. The study also indicated that there may be periods when making property loans may be advantageous, while it may be more risky in other periods.

---

1 Brueggemann, William B.: "Improving Conditions in the Commercial Mortgage Market", *The Real Estate Finance Journal* (Summer 1994), pp 17-21.

2 Stein, Joshua L.: "Mortgage Loan Structures for the 1990s", *Real Estate Review* (Spring 1994) pp 15-20.

3 Snyderman, Mark P.: "Update on Commercial Mortgage Defaults", *The Real Estate Finance Journal* (Summer 1994), pp. 22-32.

Financial Intermediaries Returning to Commercial Real Estate Lending

As argued, underwriting standards for commercial mortgages had become far more stringent[4], while the yields to lenders had risen sharply in relation to the risk-adjusted yields on alternative investments[5]. As a result, the outlooks for refinancing were strong enough for certain financial intermediaries to return to permanent commercial real estate lending. These financial intermediaries were essentially two in kind. The first were the conduits, local financial intermediaries that underwrote, bundled and resold loans to investment houses for subsequent securitization. The conduits essentially operated in the void left by the wiped-out savings and loans industry and other defaulted credit institutions. The second group consisted of a few insurance companies and commercial banks, for whom the spreads on real estate loans had become wide enough to overcome the opportunity costs mentioned earlier.

Securitization of Debt

The new lenders were convinced that real estate values had bottomed out by 1994, and that key performance benchmarks would improve as cashflow and asset values would strengthen: loan-to-value ratios would decrease, while debt service coverage ratios would increase. Often, the insurance companies and commercial lenders could make more competitive loans to A-class properties than the conduits. Many of the conduit loans were made to older B- or C-class properties and asset classes. However, as securitization techniques would improve and loan contracts would become more standardized, the conduits would be able to move into higher-quality assets. Nonregulated institutions also had good prospects to play a larger role in the capital market, as they faced few lending regulations. Financing from Wall Street through securitization of real estate debt had good chances of becoming more widespread.

---

[4] Maniscalco, Robert A. and Tanis Reed: "Equity Standby Commitments", *The Real Estate Finance Journal* (Fall 1993), pp 35-38.

[5] Corcoran, Patrick J.: "Assessing the Risks for New Real Estate Loans", *Real Estate Review* (Spring 1994).

2.1 CREATING COMMERCIAL MORTGAGE-BACKED SECURITIES

Commercial Mortgage-Backed Securities

Commercial mortgage-backed securities are derivative debt instruments. In essence, they are loan pools packaged into synthetic bonds. The loans are commercial mortgages - debt secured by income-producing commercial real estate. Commercial mortgage-backed securities are created through securitization, an asset-backed financing technique, through which the aggregate cashflow of a pool of commercial mortgages is transformed into new, different cashflow streams, repackaged by seniority and maturity[1].

Through securitization, commercial mortgage cashflow is channeled into multiple classes of securities, each representing an interest in the entire mortgage pool. In effect, the cashflow is subdivided into priority tranches, which effectively creates levels of subordination. In other words, cashflow is first allocated to the most senior bond classes; then to each of the more junior classes, in order of priority. The most junior class (the first-loss position) is the first to absorb potential defaults on the pool, thereby providing a layer of protection for the rated classes. In essence, the challenge in securitization is to determine the amount and sizes of the individual classes[2].

In a securitization transaction, a number of security classes are structured with different yields, maturities and risks, to meet the particular demand of different investors. The security classes range from senior tranches that can be rated as suitable investment vehicles of moderate risk and moderate return, to higher yielding, unrated classes with higher risk-reward ratios[3].

Commercial Mortgage Collateral

Typically, the loans in the collateral pool are secured with direct first mortgages on the underlying real estate. Commercial mortgages exist in considerable variety. Not only is each commercial property a unique business; also, each mortgage contract is a privately negotiated debt instrument with its own unique features. Therefore, a pool of commercial mortgages may have complex characteristics, and securitization requires strong real estate underwriting and financial engineering skills.

---

1 Books, Roberta Paula and Jamshid Jahm Najafi: "Elements of Design for a Commercial Mortgage Security: An Issuer's Primer", *Salomon Brothers Real Estate Finance* (December 1987).

2 Waisterlain, Mitch: "Whole Loan Securitization", *ING Capital* (1994).

3 Asay, Michael R. and Timothy D. Sears: "Stripped Mortgage-Backed Securities - Basic Concepts and Pricing Theory", *Goldman Sachs Mortgage Securities Research* (January 1988).

Commercial mortgage-backed securities can be created off mortgage collateral secured by single properties, or alternatively, off small or large mortgage pools[4]. Single-property and small-pool securities are more influenced by the performance of each property than large pool securities, because the variability of the cashflow from a single loan is greater than the variability of cashflow from a pool of loans. Large-pool securities offer more diversification of risks related to location, property type, property size, borrower concentration and other factors.

Commercial mortgage pools are typically assembled by property type: multi-family housing, retail (regional malls and shopping centers) and office buildings. Increasingly, pools containing health care facility, hotel/casino, co-op housing and mobile home mortgages are assembled. Furthermore, pools containing mixes of these asset classes are put together; as well as pools of mortgages on distressed real estate.

Distressed Mortgage Collateral

Non-performing pool securitizations or securitizations on distressed real estate are more complex in structure. Similar as in performing-pool securitizations, the noteholders are repaid in sequence in order of seniority. However, equity tranches are included. Equity tranches are usually owned by the owners of the mortgage loans, and partly by asset managers[5]. The owners of the equity tranches are often restricted from selling their interest, and they are not repaid until the noteholders are repaid in full[6]. This sequential repayment creates a back-ended incentive for the owners and the asset managers to deliver an effective liquidation strategy for the distressed properties.

If acquired at a discount, distressed mortgages can be changed into performing mortgages by changing the loan conditions. For example, the loan amount can be reduced, or the interest formulas can be adjusted to floating-rate loans in a lower-interest rate environment. As a result, non-performing pool securitizations are relatively rare. Only when the real estate itself is distressed and needs significant repositioning may such transactions be of interest. Most securitizations are performing- pool transactions.

Real Estate Mortgage Investment Conduit

The mortgages are deposited into a trust known as a REMIC (Real Estate Mortgage Investment Conduit), a special-purpose company that issues the various classes of certificates to the investors. The REMIC makes representations and warranties to the investors as to the quality and characteristics of the mortgages in the collateral pool[7]. This structure insulates the securities from liabilities and bankruptcy risks of the properties and the operators of the properties.

---

4 Quigg, Laura: "Commercial Mortgage-Backed Securities", *Lehman Brothers Fixed Income Research* (December 1993).

5 "Smartnotes - Combining Characteristics of Both Equity and Fixed-Income Investing", *Merrill Lynch & Co.* (19 March 1993).

6 Jungman, Michael: "The Investor Market for Non-Performing Pool Securitizations", *JP Morgan* (June 1994).

7 Waisterlain, Mitch: "Whole Loan Securitization", *ING Capital* (1994).

Commercial Mortgage Collateral Risk

Three factors determine the riskiness of commercial mortgages and commercial mortgage-backed securities: credit risk, extension risk and interest rate risk[8]. These risks are typical of commercial mortgages, and are passed through to the mortgage-backed securities. The creditworthiness of commercial mortgage-backed securities critically depends on the creditworthiness of the borrowers, and - indirectly - the creditworthiness of the tenants. An aspect of credit risk is extension risk, or the risk that a borrower may not be able to refinance a mortgage in time at its maturity date - the date when repayment of the outstanding loan balance is due. In turn, extension risk is influenced by interest rate risk, as refinancings depend on the interest rate levels at the maturity date.

Commercial mortgage-backed securities are not highly influenced by prepayment risk[9]. Prepayment risk is the risk that borrowers may repay the loan and refinance at lower cost with another lender, when market interest rates fall below the interest rate agreed in the original loan. Commercial mortgages typically include call-protection features, which make the prepayment economically unattractive through prepayment penalties or yield maintenance clauses. Therefore, prepayment risk is largely locked out. Prepayments that do occur tend to be related to sales of property rather than to movement in interest rates[10]. In contrast, residential mortgage-backed securities face significant prepayment risk, as homeowners are allowed to prepay their homeloans when interest rates fall.

Understanding Risks and Returns; Ratings

A securitization transaction is typically evaluated by one or more rating agencies in order to make the investment vehicle understandable and marketable. The rating agencies evaluate a transaction in terms of its capacity to meet projected cashflows and to produce stable payoff ratios. To this end, the same credit ratings are given as in the corporate bond market: for example, AAA, AA, A and BBB for investment-grade, and BB, B, CCC, CC and C for non-investment-grade or high-yield bonds.

As indicated, the most important risk factor for commercial mortgage-backed securities is credit risk: the risk whether or not mortgage cashflow will be sufficient to pay coupon and principal on the bonds. In principle, the mortgage cashflow is determined by interest rates, principal repayment schedules, prepayment provisions, and other loan features. To assess actual future cashflow, the rating agencies review certain critical factors influencing the performance of the pooled mortgages, by benchmarking certain qualitative and quantitative aspects[11].

---

[8] Quigg, Laura: "Commercial Mortgage-Backed Securities", *Lehman Brothers Fixed Income Research* (December 1993).

[9] Jacob, David P. and Kimbell R. Duncan: "Commercial Mortgage-Backed Securities: An Emerging Market", *Nomura Mortgage Securities Research* (January 1994).

[10] Waisterlain, Mitch: "Whole Loan Securitization", *ING Capital* (1994).

[11] Wechsler, Ron J., Janet P. Forst and Harvey M. Lederman: "Commercial Mortgage Stress Test", *Fitch Structured Finance* (June 8, 1992).

The qualitative reviews focus on the characteristics of the real estate that secures the pooled loans. The focus is on the key determinants of cashflow strength and property value[12]: type, location and physical condition of the properties; operational qualities and creditworthiness of the borrowers; operational qualities and creditworthiness of the property managers; lease terms, lease durations and rent roll-over schedules; operational qualities and creditworthiness of the tenants; insurance coverage, legal structures, servicers, environmental liabilities.

The quantitative reviews focus on the terms of the mortgages themselves: cashflow strength of the properties, financial terms of the mortgages and financial leverage. The key financial terms of the mortgages - interest formulas, payment frequency, repayment methods, terms to maturity, call protection - are assessed to project cashflow under different stress sensitivity scenarios[13]. In order to quantify the amount of buffer in a transaction, debt-service coverage (cash flow leverage) and loan-to-value (asset leverage) ratios are reviewed. For each security class, the rating agencies use specific benchmarks such as minimum debt-service coverage ratios and maximum loan-to-value ratios.

Credit Enhancement

Rating agencies review risks conservatively, and may require credit support to protect the investment-grade tranches from potential defaults in the mortgage pool. Depending on their sensitivity under stress tests, different credit enhancement techniques may be applied to enhance cashflow strength. One technique is overcollateralization, which requires that the value of the collateral exceeds the value of the obligations. Alternatively, the issuer may be required to submit a line of credit or hold cash in reserve to cover potential shortfalls. Other credit support techniques are the creation of reserve funds through corporate guarantees, letters of credit or mortgage insurance[14]. In single-borrower, multi-property transactions, cross-collateralization and cross-defaulting techniques can further enhance collateral quality.

Financial Attractiveness of Securitization

Securitization can be a viable way of selling or financing mortgages at an equal or better return than could be obtained through individual transactions. The level of proceeds depends on the costs and the benefits of the transaction. These are influenced by the size and the rating of the security classes, which in turn are a function of real estate quality, mortgage terms and credit enhancement techniques applied[15]. Through securitization, issuers and investors can optimize the pricing of risk and return.

---

12 "New England Mutual Life Insurance Co., Series 1993-1" *Fitch Research* (11 April 1994).

13 "Commercial Mortgage Pass-Through Certificates, Series 1994-CFB1", (22 June 1994).

14 Gorlow, Robert M., David M. Parr and Louis W. Taylor: "The Securitization of Institutional Real Estate Investments", *Real Estate Review* (Spring 1993), pp.22-28.

15 Perry, Harold W.: "Commercial Mortgage Securitization - An Overview", *Real Estate Issues* (April 1994).

2.2 A RECENT HISTORY OF THE U.S. COMMERCIAL MORTGAGE-BACKED SECURITIES MARKETS

The market for commercial mortgage securities experienced dramatic growth over the last three years, growing from $1.6 billion in 1991 to $17.2 billion in 1993. The RTC sold large parts of its assets in securitized form ($2.5 and $9.1 billion in 1991 and 1992). While "(...) the RTC sell-off paved the way by introducing the product to institutional fixed income-investors (...)[1]", private-label issuers became the market force after 1992.

In 1993, RTC issues fell to $2.8 billion, while private issues grew from $1.6 billion in 1990 to $14.5 billion by 1993. The key issuers were large owner/developers, who accounted for over 44% of transactions in 1993. Insurance companies were second with 22%, followed by REITs with 14% of issues. In 1993, mortgage conduits entered the market with some 8% of the issues[2]. In total, 122 transactions were structured[3]. Although no clear data were available, investment-grade tranches were primarily placed in the public markets, while the unrated tranches were typically sold in private transactions.

Between 1990 and 1993, total commercial mortgage debt outstanding decreased slightly from $1,068 billion to $991 billion through loan amortization and write-downs, while outstanding securitized commercial mortgage debt increased from approximately $11 billion to $51 billion. This renders a securitization percentage growing from 1% to 5%[4].

Commercial mortgage-backed securities emerged much later than the residential mortgage-backed securities markets, which were initiated by government-sponsored programs in the early 1970s. Securitization of commercial mortgages is far more complex, because commercial properties are less homogeneous than residential properties, and because commercial mortgages have less consistent underwriting standards than residential mortgages. Additionally, securitization of commercial mortgages has only become possible with the availability of information on commercial mortgage performance, and with progress in computer-supported financial engineering techniques capable of dealing with complex transactions.

More fundamentally, the key reason driving the growth of this market may be the difference between demand and supply of capital for refinancing maturing loans. Additional factors may be the pressure on regulated financial institutions to take commercial mortgage portfolios off-balance; and the view that commercial mortgage-backed securities will show stable, increasing yields.

---

1 Feinberg, Phyllis: "Real Estate Finance: All Roads Lead to Wall Street", Statement by Ethan Penner, Managing Director of Nomura Commercial Mortgage-Backed Securities, *Real Estate Forum* (May 1994), pp 32-36.

2 All numbers from Kane, Carl: "Property Securitization Survey 1993" *Kenneth Leventhal & Company* (1993).

3 Davis, Robert and Bob Vogelzang: "Commercial Mortgage Securitization: The Real Estate Financing Vehicle of the 1990s", *Arthur Andersen Real Estate Securitization Report* (Spring 1994).

4 Source: Merril Lynch and Commercial Mortgage Alert.

2.3 A CURRENT OUTLOOK FOR THE U.S. COMMERCIAL MORTGAGE-BACKED SECURITIES MARKETS

As indicated, close to $1 trillion in commercial mortgages was outstanding by 1994. This number consisted of some $700 billion in nonresidential commercial mortgages and $300 billion in multifamily commercial mortgages, of which approximately 3% and 10% respectively had been securitized into commercial mortgage-backed securities[1]. Theoretically, this would leave more than $900 billion available for securitization.

Assuming that 5-10% of nonresidential and 25-40% of multifamily commercial mortgage debt may be securitized, the market for commercial mortgage-backed securities could grow to some $110-190 billion in size at the end of this decade[2]. The following three key factors may shape the future developments in the commercial mortgage-backed securities markets.

Supply of Commercial Mortgage-Backed Securities

The supply of commercial mortgage-backed securities will be driven by continued demand for refinancing of maturing loans. Over the next three years, approximately $140 billion in commercial bullet loans of the late 1980s will be coming due annually[3]. More conservative estimates project a total of some $400 billion in loan maturities until the year 2000[4], of which some $320 billion within five years[5]. Although the variance between these numbers may be caused by the private nature of the commercial mortgage markets, the point is that such demand for refinancing probably cannot be met without significant issuing of commercial mortgage-backed securities.

The supply of commercial mortgage derivatives will additionally be driven by demand for early refinancing based on low interest rates. When interest rates are low, demand for refinancing is high - if prepayment penalties do not make refinancing prohibitively expensive. In addition, borrowers may want to leverage net cashflow with more debt.

---

1 Federal Reserve: "Federal Reserve Bulletin", Mortgage Devt Outstanding, Table 15.4 *Federal Reserve* (1993).

2 Quigg, Laura: "Commercial Mortgage-Backed Securities", *Lehman Brothers Fixed Income Research* (December 1993).

3 Feinberg, Phyllis: "Real Estate Finance: All Roads Lead to Wall Street", Statement by Sheridan Schachner, Goldman Sachs Commercial Mortgage-Backed Securities Research, *Real Estate Forum* (May 1994), pp 32-36.

4 Giliberto, Michael: "Commercial Mortgage-Backed Securities: Market Underpinnings", *Lehman Brothers Fixed Income Research* (June 1994).

5 Fox, Leslie B.: "Profiting From Change in the Commercial Mortgage Capital Markets", *Commercial Assets* (June 1994).

The third factor to enhance supply of commercial mortgage bonds is demand from debt-issuing REITs. "(...) Many REITs are finding that they can take their existing debt, securitize it - in essence refinance it - and buy down the interest rate. A REIT that as a corporate credit would be a BBB or even a non-investment-grade issuer can, through overcollateralization and securitization, finance out as high as an AA or sometimes even an AAA credit (...)."[6]

Demand for Commercial Mortgage-Backed Securities

Demand for commercial mortgage-backed securities will increase through regulation of financial institutions. Risk-based capital requirements will strongly encourage investment in securitized debt in stead of whole loans. For example, new regulations require insurance companies to keep 0.3% in capital against investment-grade bonds, compared to 3% to 20% for commercial mortgages[7]. Thus, risk-based capital requirements strongly affect returns on capital for regulated financial institutions.

As a result, risk-based capital compliance will push financial institutions away from higher-risk investments - such as mortgages. Instead, they will move towards more liquid, lower-risk investments with lower capital requirements - such as investment-grade commercial mortgage-backed securities. Recently, it was estimated that insurance companies and commercial banks were looking to swap their whole loan portfolios by $130 billion to $160 billion into commercial mortgage-backed securities[8].

Issues for the Future

In the future, the following issues will play an important role in the development of the commercial mortgage-backed securities markets. First, securitization of commercial mortgages is a relatively new technique, and the derivative structures have been fairly simple. In the future, more **sophistication** is expected: transaction sizes may increase; floating-rate loans may become pooled; equity participations may be offered to investors in high-yield classes; more complex derivative structures may be created.

As an example, complex derivatives such as inverse floaters may be created, as they have been issued in the residential mortgage-backed securities market. Inverse floaters behave in the opposite way to conventional bonds: they rise in value when interest rates rise; they fall in value when interest rates fall. Therefore, they can be useful for portfolio hedging.

---

6 Feinberg, Phyllis: "Real Estate Finance: All Roads Lead to Wall Street", Statement by Blake Baird, Managing Director of Dean Witter Reynolds, *Real Estate Forum* (May 1994), pp 32-36.

7 Zinngrade, Claude J.: "Real Estate Investment by Insurance Companies - How Risk-based Capital Requirements Affect It", *Urban Land* (March 1994).

8 Feinberg, Phyllis: "Real Estate Finance: All Roads Lead to Wall Street", Statement by Robert Zulkosky, Managing Director of GE Capital, *Real Estate Forum* (May 1994), pp 32-36.

The creation of such derivatives may depend on two factors: increased availability of information on the determinants of riskiness of commercial mortgages, and standardization of underlying commercial mortgage contracts. However, an important hurdle to the proliferation of such products may be that investors may recently have been scared by the challenging pricing aspects of complex mortgage-backed securities, and the fact that "(...) their risks may not have been well-understood by the investment community (...)"[9].

The second issue that will play a critical role in growth of the commercial mortgage-backed securities market is long-term **interest rate** developments. Increasing interest rates decrease bond values, which make commercial mortgage-backed securities less attractive to investors. Thus, a higher interest rate environment would adversely affect the relatively new market for commercial mortgage-backed securities. A solution could be the integration of floating-rate loans in the mortgages pooled for securitization.

The third issue that will play a critical role in the growth of the commercial mortgage-backed securities market to grow is **liquidity.** Most of the investments to date have been in newly issued securities, and a secondary market does not really exist yet - particularly for the higher-yielding tranches. The higher-yielding tranches have been acquired with long-term investment objectives, because of their longer durations and because an upswing in real estate values takes time. However, one day some investors in these securities will want to sell. There will be demand for updated ratings and publicly-available performance data relative to alternative instruments such as treasuries, corporate bonds and REIT stocks[10].

---

[9] Waters, Richard: "Residential Mortgage-Backed Securities: No Longer as Safe as Houses" *Financial Times* (22 July 1994), p. 13.

[10] Rosen, Robert C., Paul St. Pierre: "Looking Back on a Decade of Change: 1994-2004" *Real Estate Finance* (Fall 1993), pp 41-48;

3.1 RISK CHARACTERISTICS OF INVESTMENT-GRADE COMMERCIAL MORTGAGE-BACKED SECURITIES

Credit Risk

Investment-grade commercial mortgage-backed securities are often perceived as equivalents of investment-grade corporate bonds. Both are available in a wide range of ratings, maturities and credit risk features. Rating agencies assign a risk level to the credit risk of a bond, specified as AAA, AA, A or BBB for investment-grade.

Investment-Grade Credit Rating Scale According To Duff & Phelps Credit Rating Co.[1]

AAA or Triple A: Highest credit quality. The risk factors are negligible, being only slightly more than for risk-free U.S. Treasury debt.

AA or Double A: High credit quality. Protection factors are strong. Risk is modest but may vary slightly from time to time because of economic conditions.

A or Single A: Protection factors are average but adequate. However, risk factors are more variable and greater in periods of economic stress.

BBB or Triple B: Below average protection factors but still considered for prudent investment. Considerable variability in risk during economic cycles.

Commercial Mortgage-Backed Securities Compared with Corporate Bonds

Investment-grade commercial mortgage-backed securities are different from investment-grade corporate bonds in three important ways. First, a commercial mortgage-backed security is a structured financing, in which the collateral is secured by a pool of different properties and their cashflow. In contrast, a corporate bond is secured by the creditworthiness of single company. Thus, the income source of a commercial mortgage-backed security is more diversified than that of a corporate bond, as is the diversity in tenants, borrowers, property types, locations, and loan characteristics. Therefore, it can be argued that its intrinsic credit risk may be lower.

[1] Smith, Daniel J.: "The Analysis of Distressed Commercial Real Estate", *Duff & Phelps Credit Rating Co.* (September 1992).

Second, a commercial mortgage-backed security is typically issued by a single-purpose, lock-boxed, bankruptcy-remote entity; while a corporate bond is not[2]. Moreover, property management of the assets backing a mortgage pool must typically conform to rules set by tight mortgage contracts and securitization covenants. In contrast, corporate management has much more discretion over the allocation of its funds. Thus, the risk of bad management or even bankruptcy of the issuer may be smaller for a commercial mortgage-backed security than for a corporate bond.

Third, mortgages and corporate bonds differ with respect to the lender's legal rights, should the loan default. While mortgages and their derivatives are secured by real property, corporate bonds are less tightly secured. Therefore, in case of a bankruptcy, the owners of corporate debt may have more difficulty in realizing value claims than the owners of mortgages and their derivatives.

Commercial and Residential Mortgage-Backed Securities Compared

Investment-grade commercial mortgage-backed securities also differ from investment-grade residential mortgage-backed securities in the sense that they offer stronger prepayment protection. This is the result of explicit prepayment lockouts, prepayment penalties and the typical balloon maturities governing commercial mortgages. Residential mortgages typically do not have these characteristics.

Liquidity

Although these qualities of investment-grade commercial mortgage-backed securities may be perceived as advantages over investment-grade corporate bonds and residential mortgage-backed securities, they do differ in liquidity. While investment-grade corporate bonds and residential mortgage-backed securities were heavily traded products by mid-1994, commercial mortgage-backed securities were relatively new products, for which market liquidity was a risk factor. Liquidity may be measured by the time it takes to effectively execute a sale; or, alternatively, by bid-ask spreads[3].

By mid-1994, many bonds had been sold only once - at their time of issue. As indicated, an active secondary market with a transactions-based performance index, continuous monitoring, rating and pricing of publicly traded bonds still had to emerge. However, liquidity was increasing along with an expanding market, with growing investor confidence in the product, and with enhanced performance of the real estate industry.

---

[2] Jacob, David P. and Kimbell R. Duncan: "Commercial Mortgage-Backed Securities: An Emerging Market", *Nomura Mortgage Securities Research* (January 1994).

[3] Eikeboom, Arnout M.: "Essays in Market Microstructure", *Massachusetts Institute of Technology, Sloan School of Management* (Ph.D. Thesis, 1994).

3.2 RETURN CHARACTERISTICS OF INVESTMENT-GRADE COMMERCIAL MORTGAGE-BACKED SECURITIES

Interest Rate Instruments

An investment-grade commercial mortgage-backed security is an interest rate instrument. Like any fixed-income instrument, its value is inversely related to interest rates: bond value increases as interest rates decrease, bond value decreases as interest rates increase. At the same time, an investment-grade commercial mortgage-backed security is largely unaffected by changes in real estate values. In theory, its return characteristics are comparable with those of any other bond of comparable same rating, such as a corporate bond or a residential mortgage-backed security..

High Relative Yields

By mid-1994, comparison with corporate bonds suggested that investment-grade commercial mortgage-backed securities traded at significantly higher yields over designated indices (typically LIBOR for floating-rate debt and U.S. Treasury bonds for fixed-rate debt) than corporate bonds of equal rating. In other words, commercial mortgage-backed securities were cheaper than corporate bonds. An indication of spreads over treasuries (denoted as T) by mid-1994 (in basispoints, or 1/100 of a percent)[1] :

Rating	Commercial Mortgage-Backed Securities	Corporate Bonds
AAA	T+ 100 bp	T+ 45 bp
AA	T+ 115 bp	T+ 50 bp
A	T+ 150 bp	T+ 75 bp
BBB	T+ 215 bp	T+ 95 bp

The following issues may have caused the existence of this difference in yield spreads:

- first, fearful memories of a bear market in real estate may have caused potential investors to require a real estate premium;
- second, the rating agencies evaluate real estate derivative products with stringent underwriting criteria and strong loan-to-value and debt-service-coverage buffers;
- third, an active secondary market still has to be established for these new, sophisticated products - which may have caused a novelty premium;
- fourth, the gap between supply and demand for funds for refinancing real estate had caused a strong upward pressure on the price of money: interest.

[1] Gordon, Jacques N.: "Commercial Mortgage-Backed Securities: Buy-Side Investment Research", *LaSalle Real Estate Advisory Services* (June 1994).

Value Potential in Comparison to Other Fixed-Income Alternatives

For the future, it may be argued that these factors may gradually decline in impact, which would tighten spreads and increase the value of bonds bought at a discount. In addition, it may be expected that as trading volume will expand, liquidity will increase, spreads will tighten and values will rise.

As stated, investment-grade mortgage-backed securities are essentially interest rate instruments. The following two issues related to the 1994 low-interest rate environment deserve some attention:

- In a low-interest rate environment, call protection features are of particular value to investors funded with defined liabilities. Earlier in 1994, the absence of call protection in residential mortgage-backed securities had created rapidly falling values, when home loans were prepaid and refinanced at higher speeds than assumed in the pricing of the securities[2]. In comparison to residential mortgage-backed securities, commercial mortgage-backed securities offer strong call protection.

- In a low-interest rate environment, higher-yielding fixed-income securities are of particular interest to fixed-income investors in search for yield. At the same time, upward developments in long-term interest rates will negatively impact their value.

In conclusion, by mid-1994 commercial mortgage-backed securities offered a relatively high return on risk-based capital to the investor, which made the balance of risk and return relatively favorable.

---

[2] Waters, Richard: "Residential Mortgage-Backed Securities: No Longer As Safe As Houses", *Financial Times* (22 July 1994), p. 13.

3.3 RISK CHARACTERISTICS OF HIGH-YIELD COMMERCIAL MORTGAGE-BACKED SECURITIES

Asset Risk

The more speculative high-yield unrated commercial mortgage-backed securities are synthetic instruments, whose riskiness, performance and pricing are subject to the influence of many complex variables. Besides interest rate volatility, all variables that impact the performance of a traditional real estate investment have a direct influence on the performance of a high-yield commercial mortgage-backed security - in a leveraged way. Thus, adverse local market conditions, fiscal changes, financial distress of the borrowers, property risks, fraud and other external events could theoretically impact the junior tranches. While investment-grade mortgage-backed securities are more influenced by credit risk, the high-yield tranches (BB, B or unrated) are most impacted by asset risk.

Non-Investment-Grade Credit Rating Scale According To Duff & Phelps Credit Rating Co.[1]

BB or Double B: Below investment grade but deemed likely to meet obligations when due. Present or prospective financial protection factors fluctuate according to industry or economic conditions. Overall quality may move up or down frequently within category.

B or Single B: Below investment grade and possessing risk that obligations will not be met when due. Financial protection factors will fluctuate widely according to economic cycles and/or industry conditions. Potential exists for frequent changes in quality rating within this category or into a higher or lower quality rating grade.

CCC or Triple C: Well below investment grade securities. May be in default or have considerable uncertainty as to timely payment of interest, preferred dividends and/or principal. Risk can be substantial with unfavorable economic/industry conditions and/or with unfavorable developments.

As stated, the high-yield classes are the first to absorb any defaults on mortgage cashflow from the collateral loan pool. Unlike equity, high-yield commercial mortgage-backed securities typically only have downward cashflow risk - and no upside potential. Mortgage contracts regularly provide for fixed periodic payments. Thus, creditors periodically receive the amount agreed in the interest/repayment formula - or less, should any defaults occur. The junior, high-yield classes are the first to absorb such defaults. Thus, high-yield certificates may have the downside potential of leveraged stocks, and the upside potential of fixed-coupon bonds. Only if the pool contains participating or convertible mortgage may the junior tranches be structured as coupons with added upside potential in the form of equity kickers.

[1] Smith, Daniel J.: "The Analysis of Distressed Commercial Real Estate", *Duff & Phelps Credit Rating Co.* (September 1992).

Risks Calculated in Discounts

At the same time, this negative skewness is exactly why junior, high-yield bonds are priced at substantial discounts. Moreover, substantial capital gains upon resale of an unrated certificate may be realized. Value may accrue in three scenarios: first, if the impact of actual defaults is less than assumed in the discounted price; second, if the underlying real estate increases in value and improves its collateral quality to the mortgage certificates; and third, automatically over time: as the senior classes are repaid first, more cashflow becomes available for the junior classes over time, while total mortgage cashflow remains unchanged. In principle, these scenarios move the junior tranches up the rating scale, for example from unrated to B, from B to BB or from BB to BBB.

Still, high-yield tranches are influenced by the real estate environment, in a direct and leveraged way: since there are fixed obligations before cashflow reaches the unrated tranches, and potential defaults are concentrated in a few classes. In an effort to make the investment community aware of such risks, Standard & Poor's Rating Group recently planned to go beyond its usual credit ratings and start adding an "r" (for risk) to certain securities that face more risks than just possible changes in credit quality. While the credit rating of fixed-income instruments refers to a borrower's ability to repay, the "r" is meant to indicate market-related risks.

> "(...) The S&P highlighter would be attached to complex derivatives from the international, corporate, mortgage-backed, insurance and municipal bond markets: interest-only and principal-only mortgage strips, leveraged inverse floaters, inverse floaters linked to exotic indexes, REMIC residuals, currency-linked debt, as well as an array of proprietary structured securities including those nicknamed Percs, Decs, Prides, Aces and Steers. (...)" [2].

Although commercial mortgage-backed securities would initially not be rated "r", an increased understanding of market-related risks may only benefit the adequate perception of the commercial mortgage-backed securities and the development of the market.

Liquidity

In addition to these risks, market liquidity risk was perceived as significant by mid-1994. The unrated positions were typically placed in private negotiations, not in public markets. In addition, their creditworthiness was not indicated by credit ratings, but had to be assessed with extensive due diligence. However, many investors regarded the high-yield classes as long-term investments, as their performance depends on time, and the actual performance of the underlying real estate.

---

[2] Vogel, Thomas T.: "First The Movies and Now Bonds: S&P Prepares To Assign "R" Rating to an Array of Risky Issues", *The Wall Street Journal* (7 July 1994), pp C1 and C19, Column 1.

3.4 RETURN CHARACTERISTICS OF HIGH-YIELD COMMERCIAL MORTGAGE-BACKED SECURITIES

High Relative Yields

By mid-1994, high-yield commercial mortgage-backed securities were issued at higher yields than high-yield corporate bonds. An indication of spreads over treasuries[1]:

Rating	Commercial Mortgage-Backed Securities	Corporate Bonds
BB	T+ 450 bp	T+270 bp
B	T+ 650 bp	T+450 bp
unrated	depending on the transaction, IRR 20%+	IRR 15%+

Interest Rate Instrument and Real Estate Instrument

Where investment-grade commercial mortgage-backed securities are often compared to corporate bonds, high-yield commercial mortgage-backed securities are often perceived as mezzanine products with characteristics of real estate equities. However, it should be stressed that the high-yield securities remain instruments with fixed coupons, which essentially lack the upside potential of real estate equities.

However, another observation is that equity real estate has certain fixed-income aspects embedded in it anyway. Because of the contractual nature of real estate cashflows - which are determined by the leasing structure of the real estate - real estate equities in reality are annuities, with a claim on a relatively uncertain residual.

Long Bond plus Short Equity Put

A lower rated, high-yield subordinated commercial mortgage-backed security can also be viewed as a long position in an investment-grade bond, plus a short position in a real estate equity put option[2]. The real estate equity put option, a typical feature of non-recourse commercial mortgages, gives the right to return the real estate to the lender, when loan balance exceeds property value - that is, when real estate equity is wiped out by a decreased property value. Then, the lender receives something of less value (the real estate) than the claim it had on the loan balance, and has to realize a loss.

---

[1] Gordon, Jacques N.: "Commercial Mortgage-Backed Securities: Buy-Side Investment Research", *LaSalle Real Estate Advisory Services* (June 1994).

[2] Jacob, David and Randy Zisler: "Real Estate, Inflation and Interest Rates", *Nomura Global Real Estate Research* (April 1994), p. 27.

Upside Potential for High-Yield Certificates

The value of a long real estate equity put will decrease as property value increases, while the value of the short position - the other side of the trade - will increase. As a result, the value of a lower-rated, high-yield subordinated commercial mortgage-backed security will increase in value as the earnings quality of the real estate asset improves.

If one accepts the assumption that real estate values are at or approaching bottom, a high-yield security may be a good investment. As occupancy rates and underlying property values continue to strengthen, the security level of the assets may increase with property value, and the risk/return characteristics may become increasingly attractive.

Two other key factors influence the value of a high-yield commercial mortgage-backed security. First, a lower rated, high-yield subordinated commercial mortgage-backed security will behave inversely with interest rates, just like any fixed-income instrument[3]. Second, the high-yield security is typically structured in such a way that it will lose subordination and increase in priority on cashflow, as the higher-rated classes are paid off first. Thus, ceteris paribus, a high-yield security may increase in value over time.

---

[3] Jacob, David and Randy Zisler: "Real Estate, Inflation and Interest Rates", *Nomura Global Real Estate Research* (April 1994), p. 27.

4.1 STRATEGIC & TACTICAL PORTFOLIO APPLICATIONS OF COMMERCIAL MORTGAGE-BACKED SECURITIES

Strategic Portfolio Applications of Commercial Mortgage-Backed Securities

For the specific purposes of this paper, institutional investors were defined as financial institutions that invest funds for the long term, as a necessary result of their main activity[1]. More specifically, the following institutions were classified as institutional real estate and fixed-income investors: pension funds, insurance companies, real estate investment funds and banks. For these institutions, commercial mortgage-backed securities can have three key strategic applications: share of wealth, diversification and liquidity[2].

Share of Wealth

By 1994, the U.S. fixed income universe amounted to approximately $12,000,000 million or $12 trillion. This number was approximately divided as follows[3]:

40% or $4,800,000 million in U.S. government bonds
17% or $2,000,000 million in U.S. corporate bonds
10% or $1,200,000 million in U.S. state and local bonds
25% or $3,000,000 million in residential mortgages, of which more than 50% in securitized form
8% or $1,000,000 million in commercial mortgages, of which less than 5% in securitized form

Assuming that some 20% of commercial mortgages may be securitized by the end of the decade, commercial mortgage-backed securities can make up for an important share of the future fixed-income universe. As a result of the current trend in divestment of whole-loan commercial real estate debt, U.S. pension funds and insurance companies may become under-weighted in this fixed-income class, unless they invest in commercial mortgage derivatives. As explained, risk-based capital requirements make these securities attractive from a return-on-capital perspective.

1 Definition from "De Nederlandse Onroerend-Goedmarkt", *Staal Bankiers* (May 1989), p 28.

2 Zisler, Randall: "Where Do Commercial Mortgages Fit in a Plan Sponsor's Asset Allocation Decision?", *Nomura Fixed Income Research* (June 1994).

3 Wurtzebach, Charles H.: "Asset Allocation and Commercial Mortgage-Backed Securities", *JMB Institutional realty Corporation* (June 1994).

Diversification

Modern portfolio theory states that different investment vehicles with negative mutual correlations can lead to equal or higher portfolio returns at equal or lower risk levels. The correlation between commercial mortgages and other fixed-income instruments is relatively high, but the correlation between higher-yield commercial mortgage-backed securities and corporate bonds, for example, is extremely low[4]. This is caused by their structural difference in terms of duration, yield, risk and other factors. Thus, commercial mortgage-backed securities - especially the higher-yielding certificates - may act as better portfolio diversifiers than commercial mortgages, and lead to better portfolio benefits.

Diversification is the essence of modern portfolio theory, but the lumpiness of real estate and commercial mortgages may impede diversification efforts. Portfolio theory demonstrates that direct ownership does not make sense if there is a better and more liquid way to diversify in an asset class. The diversification offered by a portfolio of publicly-traded real estate securities may earn equal or higher returns at equal or lower risk levels.

Commercial mortgage-backed securities can act as substitutes for real estate equities, commercial mortgages, corporate bonds, and residential mortgage-backed securities. Even better efficient-frontier strategies can be designed by diversifying the commercial mortgage derivative allocation by type of collateral, by issuer and by structure.

Liquidity

In order to allocate their funds in a consistent and effective manner, institutional investors want to compare the risk/return characteristics of real estate with those of stocks and bonds. Publicly-traded real estate equity securities (such as REIT[5] shares) and real estate debt securities (such as commercial mortgage derivatives) make such a comparison effectively possible. In contrast, the nature of private real estate investments makes a comparison with publicly-traded securities difficult and even of limited use.

In addition, private real estate investments often trade at intrinsic illiquidity discounts to publicly-traded real estate securities. Illiquidity discounts for privately-owned real estate assets arise when potential exit strategies are unclear. In an illiquid environment, a buyer cannot anticipate when a next buyer may come along. Therefore, the buyer tends to price on a worst-case scenario, and to stress receiving a return from income, because timing and amount of the appreciation component of total return are quite uncertain[6].

---

[4] Zisler, Randy: "Where Do Commercial Mortgages Fit in the Asset Allocation Decision?", *Nomura Securities Research* (June 1994).

[5] Chadwick, William J.: "Equity REIT Securities: New Investment for Pension Funds?", *The Real Estate Finance Journal* (Fall 1993), pp. 24-30.

[6] Rosen, Robert C., Paul Saint Pierre and Jeffrey B. Tevis: "Looking Back on a Decade of Change: 1994-2004", *Real Estate Finance* 10:3 (Fall 1993), pp. 41-48.

The benefit to institutional investors of paying a liquidity premium is, that portfolio positions can be adjusted quickly to reflect changing perceptions of risk - more quickly than the lengthy process of purchase or sale of whole properties or whole mortgages, which may take years. As the secondary-market liquidity of commercial mortgage-backed securities grows, their advantages over commercial whole loans may increase.

Tactical Portfolio Applications of Commercial Mortgage-Backed Securities

By 1994, the following points were tactically in favor of commercial mortgage-backed securities. First, assuming that the space markets were at or below a cyclical bottom, the value of the collateral could not deteriorate significantly, unless new supply would come to the market. However, construction of new space and projects in preparation were at a 25-year low[7]. Moreover, leasing market fundamentals were strengthening.

Second, commercial mortgage-backed securities were quite conservatively underwritten and possibly trading at wide spreads, compared to alternative fixed-income instruments of equal or higher credit risk.

Third, the maturing bullet loans of the 1980s would have to be refinanced via public capital markets. Given the capital-constraints on traditional lenders, these loans probably could not be refinanced without the involvement of the capital markets. The same capital constraints made commercial mortgage-backed securities attractive to traditional lenders and institutional investors.

---

[7] Zisler, Randy: "Where Do Commercial Mortgages Fit in the Asset Allocation Decision?", *Nomura Securities Research* (June 1994).

4.2 DUTCH INSTITUTIONAL INVESTMENT STRATEGIES

Dutch Institutional Investors in Real Estate Equities

As stated, the following institutions were classified as institutional real estate and fixed-income investors: pension funds, insurance companies, real estate investment funds and banks. The following statistic depicts the 31 largest Dutch institutional real estate portfolios, consisting of both commercial and residential properties[1]:

ranked by size at year end, amounts in millions of Dutch guilders

	1992	1991	1990
ABP[A]	13,946	11,239	10,937
ING Groep[B, C]	10,515	9,927	8,769
PGGM[A]	7,587	6,999	6,227
Rodamco[D]	6,607	7,695	8,012
Fortis[B]	5,706	5,423	5,339
Aegon[B]	4,744	4,454	4,128
PVF[A]	3,740	3,415	3,055
Shell Pensioenfonds[A]	3,596	3,536	3,085
Pensioenfonds Bouwnijverheid[A]	3,471	3,314	3,025
Philips Pensioenfondsen[A]	2,980	2,892	2,825
Wereldhave[D]	2,693	3,157	3,375
Delta Lloyd[B]	2,142	2,003	1,844
AVCB[A]	1,920	1,577	1,338
VIB[D]	1,668	1,825	1,905
Pensioenfonds Metaalnijverheid[A]	1,362	1,290	1,252
MBO[D]	1,274	965	838
Innovest[D]	1,224	1,254	1,532
Landbouwpensioenfondsen[A]	1,220	1,116	1,060
KLM Pensioenfondsen[A]	1,059	1,023	942
AZL Beheer[D]	1,050	1,075	739
Pensioenfonds Hoogovens[A]	848	866	819
Akzo Pensioenfonds[A]	804	798	790
Pensioenfonds Grafische Bedrijven[A]	757	721	663
Unileverpensioenfonds Progress[A]	711	672	641
Spoorwegpensioenfonds[A]	684	657	571
Pensioenfonds Schildersbedrijf[A]	678	656	640
Pensioenfonds Vervoer en Haven[A]	659	659	675
Rabopensioenfonds[A]	569	594	614
Dela Verzekeringen[B]	548	443	424
Pensioenverzekeringsmij DSM[A]	520	518	505
ING Vastgoedfonds[D]	518	439	400

A indicates a Pension Fund; B an Insurance Company; C a Bank; D a Real Estate Fund.

[1] Rompelman, Dick: "Wegwijzer in de Wereld van Bedrijfsmatig Onroerend Goed: VGM Profiel 1994-1995", *Vastgoedmarkt* (1994).

This graph indicates that the major Dutch institutional real estate investors are pension funds, insurance companies and real estate investment funds. Many of these are cross-connected: for example, ABP has a strategic alliance with Rodamco[2]; PGGM has a strategic alliance with Wereldhave[3]; while PVF (formerly GAK) manages properties for over twenty other pension funds[4]. Several pension funds are also shareholders in VIB, MBO and Innovest, as well as in smaller real estate investment funds like West Invest Fortress, VastNed, Noro, Sarakreek and Amvabel, a Dutch index fund on U.S. REITs.

Dutch institutional investors have significant foreign real estate allocations, mainly in the United States. In August 1994, the total value of Dutch real estate investments in the U.S. amounted to $8.0 billion. Between August 1993 and August 1994, Dutch institutions invested approximately $400 million in real estate, while some $200 million was sold[5]. The geographical diversification of Dutch real estate investments abroad is as follows[6]:

ranked by size by mid-August, amounts in millions of Dutch guilders

	1994	1993	1992
United States, in $	8,000	7,800	9,100
United States, in Fl	14,100	15,100	15,100
Germany		4,000	4,750
Great Britain		2,850	3,700
France		2,700	2,900
Belgium		1,350	1,400
Spain		350	700
Other Europe		200	250
Australia		650	-

Pension Funds

By far the largest Dutch institutional real estate investors are pension funds; in 1992, 55% of the Fl 86 billion invested by the 31 largest real estate portfolios was owned by retirement plans. There are four types of Dutch pension funds: a total of 1,105 Company Pension Funds, 10 Pension Funds for Professions, 77 Pension Funds for Branches of Industry and 1 Civil Servants Pension Fund (ABP)[7]. The activities of these funds are regulated by legislation: the Law on Mandatory Participation in Company Pension Funds of 1949; the Pension and Savings Law of 1952; the Law on Mandatory Participation in Pension Funds for Professions of 1972; and the Civil Servants Pension Law of 1979.

---

2 "Annual Report Rodamco nv", *Rodamco, Rotterdam* (1993).

3 Alberts, Jaco, Robert Bakker, Rob Heideman and Hans Hoes: "De Gordiaanse Knoop van Financieel Nederland", *Het Financieele Dagblad* (6 May 1994).

4 Melis, Eric H.: "Dutch Pension Fund Real Estate Investment Policies", *Nijenrode, The Netherlands Business School* (Thesis, 1990), p. 49.

5 Rompelman, Dick: "VastGoedMarkt Special Verenigde Staten", *VastGoedMarkt* (5 August 1994), p. 29.

6 Rompelman, Dick: "Wegwijzer in de Wereld van Bedrijfsmatig Onroerend Goed: VGM Profiel 1994-1995", *Vastgoedmarkt* (1994).

7 "Financiële Gegevens Pensioenfondsen", *Verzekeringskamer* (1988), p. 3.

Financing Retirement Plans

By 1993, the market value of Dutch private pension fund assets was estimated to be around 95% of Dutch national income. In Great Britain this was 71%, in the USA 57%, in Japan 27%, and in Germany 7%[8]. Such differences are partly caused by the way in which retirement plans are financed. In the Netherlands, the contributions of plan participants are invested for the long term, and not made liquid until the plan participants claim their pensions. In contrast, in other countries, the pensions of the currently retired are directly financed by the contributions of the currently employed.

Pension Fund Investment Objectives

The investment objectives of Dutch pension funds are indirectly governed by restrictions imposed by government legislation, and by the statutes of the individual pension funds. For example, ABP may invest up to a limit of 5% of a company's stocks or bonds, and up to 15% in investment funds. Another restriction to ABP is that no more than 5% of its assets may be invested abroad; however, this percentage may increase in the future.

The financial objectives of Dutch pension funds are geared towards the following five criteria, in order of priority: maximization of return on investment; prudent diversification; hedging against inflation; minimization of risks; minimization of taxes[9]. Although the Dutch pension funds are currently exempt from taxation, there have been calls to tax the surplus capital of the pension funds. In 1988, the investment portfolios of Dutch pension funds were allocated as follows[10]:

	Civil Servants	Companies	Professions	Industries
Real Estate	8,148 (5.6%)	7,293 (8.2%)	57 (0.7%)	13,435 (14.3%)
Mortgages	7,548 (5.2%)	1,949 (2.2%)	-	4,494 (4.8%)
Shares	3,865 (2.7%)	15,151 (17.0%)	301 (3.8%)	12,193 (12.9%)
Bonds	21,071 (14.5%)	27,423 (30.7%)	504 (6.4%)	10,436 (11.1%)
Other Loans	102,824 (70.6%)	30,852 (34.6%)	795 (10.1%)	42,582 (45.2%)
Other Investments	-	3,977 (4.4%)	6,174 (78.5%)	10,092 (10.7%)
Deposits	2,073 (1.4%)	2,582 (2.9%)	34 (0.5%)	980 (1.0%)
TOTAL	145,529	89,277	7,865	94,212

Insurance Companies

The investment portfolios of life insurance companies often have different structures from pension funds; for example, insurance companies typically have a higher allocation in mortgages. This is a result of the differences in activities between the two. An aspect may be that mortgages lend themselves to duration matching with liabilities. Also, the liquidity requirements and inflation exposure of insurance companies are different than those of pension funds. While the liabilities of insurance companies are often in nominal terms, pension funds must preserve purchasing power for plan participants.

---

8 Henzler, Herbert A. and Lothar Spaeth: "Sind die Deutschen noch zu retten?" *Bertelsmann* (1993)

9 Melis, Eric H.: "Dutch Pension Fund Real Estate Investment Policies", *Nijenrode. The Netherlands Business School* (Thesis, 1990), p. 118.

10 "Financiële Gegevens Pensioenfondsen", *Verzekeringskamer* (1988). Apologies for 6-year old data.

Dutch Institutional Investors in Real Estate Debt

The following statistic shows the 18 largest Dutch institutional mortgage portfolios, collateralized by commercial and residential properties[11]. Not including Rabo - because of its focus on agribusiness - pension funds owned 13%, banks 40% and insurance companies 47% of the 18 largest real estate debt portfolios in 1992:

ranked by size at year end, amounts in millions of Dutch guilders

	1992	1991	1990
Rabo[C]	103,600	97,000	75,700
ING[B, C]	60,400	52,300	59,300
ABN AMRO[B, C]	52,800	43,000	43,100
Aegon[B]	18,300	16,800	15,300
Fortis[B]	17,700	15,000	14,300
ABP[A]	13,800	11,500	10,100
Bouwfonds Nederlandse Gemeenten[C]	10,400	9,700	8,900
SNS Bank[C]	7,900	5,700	5,100
AVCB[A]	5,100	4,400	2,800
Assurantiekantoor Stad Rotterdam[B]	4,700	4,100	3,900
Bouwfonds Limburgse Gemeenten[C]	3,700	3,600	3,600
Bank Nederlandse Gemeenten[C]	3,400	2,900	2,500
CL Bank Nederland[C]	2,800	2,500	2,400
GAK[A]	2,800	2,300	2,000
Delta Lloyd[B]	2,700	2,600	2,500
PGGM[A]	2,400	2,500	2,500
Philips Pensioenfondsen[A]	1,200	1,300	1,300
Zwitserleven[A]	1,200	1,200	1,100

A indicates a Pension Fund; B an Insurance Company; C a Bank; D a Real Estate Fund.

Liquidity

Dutch institutional investors are increasingly interested in building more liquidity in their portfolios, to enhance the ability to adjust investment allocations according to changing risk perceptions. Publicly-traded securities such as REIT shares and mortgage-backed securities can undercut the disadvantages of real estate illiquidity, and make the expensive, subjective valuation of privately held properties unnecessary[12]. As a result of this demand for liquidity, the first Dutch residential morgage-backed securities issue was underwritten in 1993[13]. Liquidity was also increasingly desired in foreign investments. The Civil Servants Pension Fund ABP recently decided to refocus its U.S. real estate investment policy from direct real estate investments to indirect real estate investments. For the future, a potential strategy of swapping direct real estate investments with REIT shares was envisaged[14].

---

11 Rompelman, Dick: "Wegwijzer in de Wereld van Bedrijfsmatig Onroerend Goed: VGM Profiel 1994-1995", *Vastgoedmarkt* (1994).

12 Levit, M.: "Real Estate Investment Trusts Sterk in Belangstelling van Beleggers", *Vastgoedmarkt & Amvabel nv* (6 August 1993), p. 27.

13 "Hooge Huys Hypotheekfonds - Introductiebericht tevens Prospectus", *MeesPierson* (23 September 1993).

14 Statement by Mr. J. Klijnen, Director Real Estate Investment Funds, ABP Real Estate Division (August 1994).

4.3 POTENTIAL DEMAND FOR COMMERCIAL MORTGAGE-BACKED SECURITIES AMONG DUTCH INSTITUTIONAL INVESTORS

To assess the potential demand for commercial mortgage-backed securities among Dutch institutional investors, an exploratory research was undertaken by means of a convenience sample. A convenience sample is one in which the only criterion for selecting the sampling units is the convenience of the researcher. Convenience sampling is suitable in exploratory situations, when there is a need to get only an approximation of the actual value relatively quickly and inexpensively[1].

Since the respondents and the researcher had a common understanding of real estate and securitization, the researcher decided to use structured in-depth interviews with a pre-specified set of topics: the future of the real estate industry in the U.S., the potential of securitization of real estate equity and debt, and the attractiveness of commercial mortgage- backed securities to Dutch institutional investors. The purpose was to assess potential demand in qualitative terms. In July 1994, 20 telephone and personal interviews were conducted with the management of the following Dutch institutional investors:

ABP[A]	Mr R. Bottorf	President	ABP North America
	Mr J. Klijnen	Director	ABP Real Estate Investment Funds
ING[B, C, D]	Mr N. Fennes	President	ING Real Estate Investment Fund
	Mr D. Beyen	Vice-President	ING Real Estate Investment Fund
	Mr B. van Rhijn	Principal	ING Fixed Income
	Mr W. Veenhuysen	President	ING Insurance Real Estate USA
	Mr T. Biggs	Principal	ING Investment Center
	Mr B. Burnaman	Trader	ING High-Yield Trading
PGGM[A]	Mr Vermaas	Director	PGGM Fixed Income
	Mr B. Branch	President	Dutch Institutional Holding USA
Rodamco[D]	Mr M. Hoek	Vice-President	Rodamco North America
	Mr L. Borg	Vice-President	Rodamco North America
Shell[A]	Mr J. van Poppel	President	Argus Real Estate USA
Wereldhave[D]	Mr C. Schouten	President	West World Holding USA
	Mr J. van der Made	Finance Director	Wereldhave Holding
Hoogovens[A]	Mr Hooghiemstra	Manager	Hoogovens Fixed Income
Noro[D]	Mr M. Raffety	President	Noro Realty Advisors
	Mr G.L. Boel	Controller	BCD Holdings
HAL[D]	Mr P. Manheim	President	HAL Investments
	Mr M. Antognelli	Treasurer	HAL Investments
Tripos[D]	Mr W. Korijn	President	Tripos Beheer

[1] Tull, Donald S. and Del I. Hawkins: "Marketing Research: Measurement and Methods", *MacMillan Publishing Company, New York* (1984), p. 387.

Interview Results

In short, Dutch institutional investors will be no significant buyers of commercial mortgage-backed securities in the current early stages of this emerging market. The reasons vary with general investment strategies; tactical investment allocations; views on future developments in the U.S. economy; views on future developments in bilateral currency exchange, interest and inflation rates; views on future developments in the U.S. real estate markets; and views on risk management of derivative securities.

Relative to U.S. investors, Dutch and continental European institutional investors are known to invest with risk tolerances ranging from conservative to only moderately aggessive[2]. However, there is a strong interest in real estate securitization in the United States, and how to participate in its benefits. For example, in the future ABP may invest predominantly in liquid securities; others investors were shifting their investment priorities in a similar direction.

Individual institutional investors had different views on commercial mortgage-backed securities, but there were consistencies among pension funds, real estate investment funds, insurance companies and banks. Also, some input from high-yield investors could be included in the research.

Pension Funds

Dutch pension fund **real estate** managers were quite interested in the emerging market for securitized real estate transactions, including commercial mortgage-backed securities. The perception of upside potential in U.S. real estate investments contributed to their interest, particularly if the real estate could be acquired at proformas based on current realities. In addition, increased liquidity in foreign investments was a recurring theme. The real estate people tended to look at the middle of the rating spectrum: lower investment-grade and above-first-loss positions, where asset risk is more important, and sound real estate judgment would be most critical. For these tranches however, there was concern how exactly the upside potential could be realized. Investment-grade tranches were seen as more appropriate for fixed-income departments.

Particularly the larger funds were interested; possibly because their budgets more easily justify allocations in new securities, and because they may have more experience with U.S. real estate. However, they did not envisage investments in the short term.

---

[2] Pension funds for example, are known as prudent, careful investors. This may be influenced by laws governing pension fund strategies; the fiduciary responsibility of investing for people who have retired and people who will retire; the limited degree of competition between regulated pension funds; the limited degree of influence of plan participants on pension plan investment performance; and the incentive systems of portfolio managers.

Dutch pension fund **fixed-income** managers did not see a match between commercial mortgage-backed securities and their investment objectives. First and foremost, Dutch institutional fixed-income investors typically have a high allocation in Dutch government bonds[3]. In sequence of priority would follow: Dutch corporate bonds - other European government bonds - other European corporate bonds - U.S. government bonds - U.S. corporate bonds - U.S. non-corporate bonds. The step from U.S. government bonds to U.S. corporate bonds was seen as wide: the spreads were considered to be too narrow to justify the extra risk of investing in unknown creditors. Thus, any allocation towards U.S. commercial mortgage-backed securities would be limited to zero.

When considering corporate bonds, some fixed-income managers found timing and country choice more important than debtor choice. They had found, that the decision where and when to invest was more important for their profitability than the decision to which specific company to lend. Because of the importance of timing, short holding periods and clear exit strategies were required on foreign fixed-income investments.

Additional concerns in fixed-income departments were the complexity of these derivative securities; the organizational ability to monitor their performance; the organizational question in which departmental allocations such hybrid securities would belong; and the expected developments in bilateral inflation, interest and currency exchange rates.

Real Estate Investment Funds

Similar to pension fund real estate managers, Dutch real estate investment fund managers were quite interested in the emerging market for securitized real estate investments. The key reason was an interest in taking advantage of growth potential on U.S. real estate investments; secondly, liquidity in U.S. real estate investments may have been of importance. Real estate investment funds were primarily interested in REITs; however, commercial mortgage-backed securities deserved their attention.

It was noted that real estate investment funds appreciated single-asset transactions more than pooled commercial mortgage securitizations. Three reasons may have contributed to this view. First, the single-asset background of the fund managers possibly made single-asset transactions easier to evaluate. Second, it would conceivably be easier to compare an agency's rating with the fund's own judgment on a single-asset deal, and decide whether an investment would be a good buy. Third, Dutch real estate investment funds typically invested in large class-A downtown office buildings and regional malls; single-asset and small-pool transactions are usually created off such properties.

---

[3] Arnott, Robert D. and Peter L. Bernstein: "The Right way to Manage Your Pension Fund", *Harvard Business Review* (January-February 1988).

One inhibition among Dutch real estate investment funds against securitization may have been the perception that the core competence was in the selection and competitive management of properties, rather than in the selection of stocks or bonds - where many other variables may influence investment performance. Additionally, control over the property and its management was seen as key to succesful investment.

Insurance Companies and Banks

Most of the interviewed managers represented pension funds and real estate investment funds; insurance and bank portfolio managers could only be interviewed internally at ING. These interviews revealed that fixed-income and real estate managers at Dutch insurance companies and banks may evaluate commercial mortgage-backed securities similarly as the pension funds. In the future, Dutch insurance companies and banks may become more interested in commercial mortgage derivatives - particularly those with substantial dollar-denominated liabilities.

High-Yield Investors

In the U.S., demand for high-yield commercial mortgage-backed securities comes from cross-over high-yield corporate bond buyers, entrepreneurial real estate investors, finance companies, mutual funds, REITs, high-net-worth individuals and opportunistic hedge funds[4]. In the Netherlands, the high-yield investor market is limited to cross-over high-yield corporate bond buyers and high-net-worth individuals with affinity to real estate. A few of the latter could be interviewed.

It was found, that high-net-worth individuals would typically invest with relatively short time horizons. Potential investments were screened on three key concerns: the potential for high yields; flexibility through clear exit strategies; and effective management control over investments. They were typically interested to buy low and add value quickly, while they found that control could be worth something extra. High-net worth individuals appreciated opportunities where there is distress, and saw potential value in the U.S. real estate markets. However, they would typically rather take a position in a single asset than in a pool of real estate, which would be difficult to assess and monitor from overseas.

> "(...) There is a lot of distressed real estate in the United States, and the problem is that a lot of it is really of bad quality. You will need the management skills, the people and the incentives to bring the assets back in the money. Equally, the managers of the mortgaged properties need those skills. Out of Amsterdam, I cannot judge the quality of the pool; nor can I judge whether the people can manage those properties in a distressed local market better than their competition can (...)[5]."

---

[4] Schechner, Sheridan: "Real Estate Securitization", *Goldman Sachs Commercial Mortgage-Backed Securities Research* (June 1994).

[5] Statement by a high net-worth individual on August 4, 1994.

4.4 MANAGING CURRENCY RISK, INTEREST RATE RISK AND FISCAL ASPECTS

Managing Currency Exchange Risk and Interest Rate Risk

To a Dutch investor, U.S.-dollar denominated bonds are of interest if the dollar will increase in value relative to the Dutch guilder, or if U.S. interest rates will decrease relative to comparable Dutch interest rates. Both scenarios increase the guilder value of the dollars received in the future. Inversely, if the dollar/guilder exchange rate falls or U.S. interest rates rise, dollar-denominated bonds are not a desirable investment. Depending on the investor's expectations about future interest, inflation and currency exchange rates, it may be of interest to hedge the dollar cashflow from commercial mortgage-backed securities against adverse developments[1].

To this end, the view is taken that currency exchange rates, interest rate differentials and inflation rate differentials are fully interconnected through perfectly efficient global money markets. It is assumed that any changes in bilateral interest rates are fully and inverse related to changes in currency exchange rates[2]. Therefore, ex ante, it is assumed that inflation, interest and currency exchange rate risk are identical in an international bond portfolio, particularly for a portfolio with a relatively long duration. Consequently, a Dutch investor can defend a portfolio of commercial mortgage-backed securities by hedging either interest rate or currency exchange rate risk. Three examples are given of currency hedges.

Average $/Fl Exchange Rates in August[3]

1988	1989	1990	1991	1992	1993	1994
2.13	2.19	1.76	1.94	1.65	1.93	1.76

A first possibility is to hedge with dollar futures. To manage the risk that the dollar may fall in value, the Dutch investor can sell the dollars that will be received from the known coupon and principal payments at fixed prices in the currency futures market. This way, the Dutch investor can calculate exactly how many guilders the dollars will be worth.

---

1 Mansfield, William G.: "Hedging International Bond Portfolios", *Masschusetts Institute of Technology, Sloan School of Management* (M.Sc. Thesis, 1990).

2 For the connection between interest rate, exchange rate, inflation rate and purchasing power parities see: Myers, Stewart C. and Richard A. Brealey: "Principles of Corporate Finance" *McGraw-Hill* (1991), p. 860.

3 Rompelman, Dick: "VastGoedMarkt Special Verenigde Staten", *VastGoedMarkt* (5 August 1994), p. 29.

A second possibility is to hedge with options on dollar futures. The investor can buy dollar put options, which give the right to sell the dollars at a fixed price, should the dollar fall against the guilder. This way, the investor can calculate exactly the minimum guilder value for the dollars received from the investment. If the dollar rises in value, the put option is not exercised, and the dollars are worth more in guilder terms.

The advantage of buying put options on dollar futures over selling dollars forward is that the investor keeps upside potential if the dollar rises in value. Therefore, buying put options on dollar futures may be more expensive than selling dollars forward. If the investor is willing to give up part of that upside potential, a third and cheaper alternative may be to create a collar. Here, the Dutch investor would buy put options and simultaneously write call options on dollar futures. This way, the guilder value would be fixed between an agreed minimum level and an agreed maximum level.

Although in theory hedging should offset risks precisely, practically, the investor must make some allowance for overhedge or underhedge results, if the actual dollar cashflow is different from the projected dollar cashflow. Particularly higher-yielding commercial mortgage-backed securities may be more difficult to hedge, because their payoff may be not as predictable as the payoff from investment-grade tranches.

An important aspect in defending a portfolio in volatile markets is that there may be situations where the best strategy involves hedging only a part of the portfolio's currency or interest rate exposure. The level of hedging which will minimize the portfolio's volatility - the portfolio's optimal hedging ratio - can be mathematically defined[4].

Fiscal Aspects

The fiscal aspects of investing in commercial mortgage-backed securities deserve special consideration. In principle, the question may arise whether foreign income from commercial mortgage-backed securities should be taxed as income from real property, as interest on bonds, as dividends on equities, or whether they should be treated similarly as dividends from real estate investment trusts.

The 1992 bilateral tax treaty between the U.S. and the Netherlands[5] and its 1993 amendment[6] provide specific regulations that may apply to Dutch institutions investing in commercial mortgage-backed securities. Generally, the treaty provides that interest arising in the U.S. may be taxed in the Netherlands, and not in the source country where the interest arose (the U.S.).

---

[4] Gann, Conrad H.: "Effects of Currency Hedging on the Expected Return and Volatility of Global Bond Portfolios", *Massachusetts Institute of Technology, Sloan School of Management* (Thesis, 1992).

[5] "Convention Between The Kingdom of The Netherlands and The United States of America For The Avoidance Of Double Taxation And The Prevention Of Fiscal Income With Respect To Taxes On Income", *Royal Netherlands Embassey* (December 18, 1992).

[6] "Protocol Amending the Convention Between The Kingdom of The Netherlands and The United States of America For The Avoidance Of Double Taxation And The Prevention Of Fiscal Income With Respect To Taxes On Income", *Royal Netherlands Embassey* (13 October 1993)

However, according to Article 12, §7, no such exemption applies to a particiation in a REMIC, a Real Estate Mortgage Interest Conduit. For U.S. Tax purposes, REMICs are generally treated as tax-exempt pass-through clearing agencies. A Dutch resident or its U.S. subsidiary investing in a REMIC is subject to a 30-percent U.S. tax on certain interest portions of the REMIC's income. In addition, the treaty provides that taxes on the participation may not be offset by any net operating losses of the investor[7]. In the Netherlands, this interest portion is not taxed[8]. For accredited Dutch investment funds and pension funds, different company and income tax regulations and exemptions may apply with respect to cross-border real estate investments[9].

Additional consideration is necessary when setting up a leveraged U.S. subsidiary to invest in commercial mortgage-backed securities. As of 1 January 1994, interest payments from subsidiaries to parent companies cannot be deducted from subsidiary fiscal income, when 1) the subsidiary's debt is more than 150% of its equity and 2) the net interest payments are more than 50% of cashflow. In many cases, this may imply that the subsidiary should be leveraged with a maximum debt-equity ratio of 3:2[10].

---

7 "Explanation of Proposed Income Tax Treaty And Proposed Protocol Beween The United states and The Kingdom of The Netherlands", *Joint Committee on Taxation* (26 October 1993).

8 Tweede Kamer der Staten-Generaal: "Goedkeuring van de op 18 December 1992 te Washington tot stand gekomen Overeenkomst tussen het Koninkrijk der Nederlanden en de Verenigde Staten van Amerika tot het vermijden van dubbele belasting en het voorkomen van het ontgaan van belasting met betrekking tot belastingen naar inkomen, met briefwisseling en Memorandum van overeenstemming", *23220, nr.3* (Vergaderjaar 1992-1993), p. 26.

9 Beerepoot, P.J.: "Income Tax Aspects of International Real Estate Investments", *Stichting voor Beleggings- en Vastgoedkunde, Universiteit van Amsterdam* (MRE Thesis, September 1992).

10 Postma, A.J.: "Fiscale wetgeving VS geeft opnieuw reden tot zorg", *Financieel Dagblad* (9 September 1993).

4.5 MARKETING COMMERCIAL MORTGAGE-BACKED SECURITIES TO DUTCH INSTITUTIONAL INVESTORS

Departmental Allocation

The following suggestions may be of use in marketing commercial mortgage-backed securities to Dutch institutional investors. First, the interviews revealed that pension funds had a difficulty positioning the product internally. Depending on the tranche, commercial mortgage-backed securities may have certain characteristics of real estate; of stocks; of bonds; and of mortgages. Therefore, the issue was whether they should be allocated in the real estate departments; the equity departments; the fixed-income departments; the mortgage departments; or any combination of these.

Apparently, this issue had even caused some of the Dutch institutional investors to avoid investing in hybrid securities - such as convertible corporate debt or other mezzanine securities - altogether. Therefore, the critical path in marketing commercial mortgage-backed securities may be through the real estate departments, with liquid securities that have moderate risk but real estate appreciation potential. It would seem, that BBB- and BB-rated tranches may be most appropriate for these investors.

Making the Market

In addition, institutional management repeatedly posed the question whether the issuer would sell the securities under a private label, and make the market by offering a buy-back guarantee. This may have been caused by the relative complexity of commercial mortgage derivatives, the emerging stage of the market, and its current liquidity. Depending on the issuer's readiness to make the market, and depending on the buy-back price that the buyers would require, it may be useful to wait with marketing commercial mortgage-backed securities to Dutch institutional investors until the market has become more liquid and product acceptance has grown.

Alternative strategies may be to co-invest along with buyers to show conviction in the product; or to come to the market in cooperation with a first-class U.S. investment bank with demonstrable experience in issuing commercial mortgage-backed securities to foreign investors.

Due Diligence

When marketing such securities, it may be useful to support foreign investors in the due diligence process on the underlying mortgages and the underlying real estate. It has been said that the due diligence required on commercial mortgage-backed securities is inversely proportional to the rating received. "(...) No real estate investment, whether in bricks and mortar, mortgages, REITs or securitized vehicles of any sort, can be looked at without an understanding of the basic underlying economics of the real estate (...)"[1]. The due diligence process should include the following issues[2]:

Due Diligence for Lower-Rated Commercial Mortgage-Backed Securities

---

analysis of the underlying real estate: mark-to-market valuation, major lease expirations, rental market trends, cap rate assumptions, environmental reports;

analysis of financial characteristics of the mortgages: debt service coverage ratios, loan to value ratios, yields to maturity, weighted average life, risk ratings; restrictive covenants, assignment and prepayment risks; balloon risks and accelerated amortization provision;

analysis of the financial structure of the transaction: credit enhancement and subordination levels, numbers and types of the security classes; rating agency issues; treasury spread comparison;

analysis of the management structure of the transaction: issuer and servicer expenses; quality of the documentation; quality of servicer reports; track record of servicer experience;

analysis of the pricing model: loan pricing module; security pricing module; delinquency/default stress tests; risks return measures; placement on the yield curve; duration/convexity of each security class; comparative analysis with other investments.

---

[1] Swartz, Jerry, in: "Commercial Mortgage-Backed Securities Riding for a Fall?", *Real Estate Weekly* (18 May 1994), p.17.

[2] Gordon, Jacques N.: "Commercial Mortgage-Backed Securitys: Buy-Side Investment Research", *LaSalle Real Estate Advisory Services* (June 1994).

Eurobond Markets

Commercial mortgage-backed securities may be marketed directly to the U.S. subsidiaries of Dutch institutional investors. Alternatively, they may be marketed directly in the Eurobond markets[3]. Such offshore transactions should be in reliance on SEC Regulation S, and can only be marketed to qualified institutional buyers within the meaning of Rule 144A[4]. Investors may hold their interest directly through Euroclear or Cedel, if they are participants in such systems, or indirectly through organizations that are participants in such systems[5]. Euroclear and Cedel are the two major organizations which clear securities in the Eurobond markets. They are owned by shareholding banks and located in Brussels and Luxemburg, respectively[6].

---

3 Andersen, Torben Juul: "Euromarket Instruments - A Guide To The World's Largest Debt Market", *New York Institute of Finance* (1990).

4 "Mortgage Collateral Notes Due November 1, 2000 of Pacific Acquisition Corporation", *Lehman Brothers* (November 1, 1993).

5 "The CSFB Guide to Innovations, Structures and Terms of the Eurobond Markets", *Credit Suisse First Boston & Probus Publishing Company, Chicago* (1988).

6 Fisher, F.G.: "Eurobonds", *Euromoney Publications* (1988), pp. 216 and 218.

5.0 CONCLUSIONS

Growth in the Commercial Mortgage-Backed Securities Market

Demand and supply will determine growth in the emerging market for commercial mortgage-backed securities. Supply of new commercial mortgage-backed securities may be driven by approximately $140 billion in commercial mortgages expiring each year over the next three years. While traditional lenders have withdrawn from commercial mortgage lending, these loans can probably not be refinanced without the involvement of the capital markets.

Demand may be driven by regulated financial institutions, which are pushed toward more liquid, less risky investments than commercial mortgages. Demand from these institutions may grow rapidly, based on the potential risk and return characteristics of commercial mortgage-backed securities, and because the risk-based capital requirements for these certificates are significantly lower than for commercial mortgages. In addition, the yield differentials with comparable fixed-income instruments - such as corporate bonds and residential mortgage-backed securities - are wide; underwriting standards are tight; collateral risks are more diversified; and commercial real estate collateral risk may decrease.

Additional demand may come from those investors who reason that the U.S. real estate markets have bottomed out. Commercial real estate has gone through a drastic period of repricing in the early 1990s. Slow economic growth may drive the demand for space. Consequently, real estate values may recover from a cyclical bottom, and the intrinsic value of publicly-traded real estate securities may rise. In addition, vacancies are so high, that rents may be floating around a natural bottom. Therefore, collateral quality and credit risk may face more upside potential than downward risk.

The results of growth in the emerging market for commercial mortgage-backed securities may be enhanced liquidity, tightening spread differentials over more traditional fixed-income instruments, and increasing value. However, the future interest environment will strongly impact the performance of these products, as it will equally impact the return on other fixed-income instruments.

Dutch Demand for U.S. Commercial Mortgage-Backed Securities

A few Dutch institutional investors were interested in commercial mortgage-backed securities. However, they may not take positions in this early stage of the market. They felt it may be better to wait, learn about the product and monitor the development of liquidity and returns in this emerging market. In addition, they felt the strongest value increases may come about later, with a recovering real estate market.

A few key Dutch institutional investors were convinced of the fundamental shift in financing U.S. real estate, from private to public markets. Perceived advantages of holding real estate in the more liquid form of publicly-traded securities were liquidity, real-time pricing, and the potential to reduce the cost of managing a real estate portfolio. Some institutional investors foresaw a strategy of partly exchanging their extensive direct real estate investments for more liquid real estate securities, such as REIT shares. Once the Dutch institutional investors would decide to move forward into commercial mortgage-backed securities, potential demand should not be underestimated.

The author takes the view that two sources of Dutch institutional demand may develop for commercial mortgage-backed securities, as product acceptance and secondary market liquidity grow. The first is demand for lower-rated investment-grade commercial mortgage-backed securities from the real estate departments of the largest pension funds. The second is demand for high investment-grade commercial mortgage-backed securities from the fixed-income departments of Dutch insurance companies and banks with dollar-denominated liabilities.

The key issues to address in marketing commercial mortgage-backed securities to potential Dutch institutional investors are: making the market by co-investing; co-marketing with a solid and experienced U.S. investment bank; and/or issuing a buy-back guarantee under a private label. Furthermore, assistance in due diligence; direct issuing in the Eurobond markets via European clearing agencies; taxation; and timing. Timing is of particular importance to Dutch investors: over the lifetime of the bonds, Dutch portfolios face the additional risk from potentially adverse changes in bilateral interest rate differentials, inflation rate differentials and dollar/guilder exchange rates.

Finally, it may be of critical importance to monitor the allocation process within the institutional investors. Commercial mortgage-backed securities are hybrid securities that may fall under the responsibility of a combination of the real estate, the fixed-income, the mortgage and the equity desks, which may complicate the marketing effort.

LITERATURE

Alberts, Jaco, Robert Bakker, Rob Heideman and Hans Hoes: "De Gordiaanse Knoop van Financieel Nederland", *Het Financieele Dagblad* (6 May 1994).

Ames, Chris: "Introduction to Collateralized Mortgage Obligations", *Lehman Brothers Fixed Income Research* (August 1993).

Andersen, Torben Juul: "Euromarket Instruments - A Guide to the World's Largest Debt Market", *New York Institute of Finance* (1990).

Angell, Robert J.: "Evaluating Investments in CMOs", *Real Estate Review* (Summer 1991).

"Annual Report Rodamco nv", *Rodamco, Rotterdam* (1993).

Arnott, Robert D. and Peter L. Bernstein: "The Right way to Manage Your Pension Fund", *Harvard Business Review* (January-February 1988).

Asay, Michael R. and Timothy D. Sears: "Stripped Mortgage-Backed Securities - Basic Concepts and Pricing Theory", *Goldman Sachs Mortgage Securities Research* (January 1988).

Asay, Michael R. and Timothy D. Sears: "Stripped Mortgage-Backed Securities - Trading Strategies and Portfolio Applications", *Goldman Sachs Mortgage Securities Research* (Jan 1988).

Beerepoot, drs P.J.: "Income Tax Aspects of International Real Estate Investments", *Universiteit van Amsterdam, Stichting voor Beleggings- en Vastgoedkunde* (MRE Thesis 1992).

Benjamin, John D. and H. Kent Baker: "Establishing an Active Secondary Market for Commercial Mortgages", *The Real Estate Finance Journal* (Summer 1994), pp. 67-72.

Books, Roberta Paula and Jamshid Jahm Najafi: "Elements of Design for a Commercial Mortgage Security: An Issuer's Primer", *Salomon Brothers Real Estate Finance* (December 1987).

Bradley, Richard H. and Gayle L. Berens: "Center Cities", *Urban Land Institute.*

Bruce, Brian R.: "Real Estate Portfolio Management - Analysis & Evaluation for Fund Managers, Sponsors and Consultants", *Probus Publishing Company* (1991).

Brueggeman, William B.: "Improving Conditions in the Commercial Mortgage Market", *The Real Estate Finance Journal* (Summer 1994), pp. 17-21.

Brunette, David L.: "The Russell-NCREIF Real Estate Performance Report", *National Council of Real Estate Investment Fiducuaries/Frank Russell Company* (First Quarter 1994).

Cercone, Michael: "Real Estate Auctions as a Market-Clearing Mechanism for Repossessed Real Estate", *Massachusetts Institute of Technology, Center for Real Estate* (M.Sc. Thesis, 1991).

Chadwick, William J.: "Equity REIT Securities: New Investment for Pension Funds?", *The Real Estate Finance Journal* (Fall 1993), pp. 24-30.

"Commercial Mortgage Pass-Through Certificates, Series 1994-CFB1", (22 June 1994).

"Convention Between The Kingdom of The Netherlands and The United States of America For The Avoidance Of Double Taxation And The Prevention Of Fiscal Income With Respect To Taxes On Income", *Royal Netherlands Embassey* (December 18, 1992).

Corcoran, Patrick J.: "Assessing the Risks for New Real Estate Loans", *Real Estate Review* (Spring 1994), pp. 10-14.

Crosson, Stephen T. and Charles G. Dannis: "Redesigning Appraisal Reports for Securitized Offerings", *Real Estate Review* (Summer 1993), pp. 35-38.
Davis, Robert and Bob Vogelzang: "Commercial Mortgage Securitization: The Real Estate Financing Vehicle of the 1990's", *Arthur Andersen Real Estate Securitization Report* (Spring 1994).
Dunlevy, John N.: "Evaluating Risk/Return Attributes of CMBS", *Hyperion Capital Management* (June 1994).
Durdan, Sally E. and Scott P. Mason: "Travelers Mortgage Securities CMO", *Harvard Business School*, Case 9-286-061 (1986).
Edens, Wesley R.: "Commercial Mortgage Securities Market", *Blackrock Financial Management* (June 1994).
Eikeboom, Arnout M.: "Essays in Market Microstructure", *Massachusetts Institute of Technology, Sloan School of Management* (Ph.D. Thesis, 1994).
Eiteman, David K., Arthur I. Stonehill and Michael H. Moffett: "Multinational Business Finance", *Addison-Wesley Publishing Company* (1991).
Ellson, Richard and John Mulligan: "Developments in Commercial Mortgage Securitization", *Capital Sources for Real Estate* (February 1994), pp. 1-6.
"Explanation of Proposed Income Tax Treaty And Proposed Protocol Beween The United states and The Kingdom of The Netherlands", *Joint Committee on Taxation* (26 October 1993).
Faggen, Ivan: "Bank Real Estate Problem Assets - A Global Issue", *Arthur Andersen Real Estate Viewpoints* (June 1994).
Feinberg, Phyllis: "All Roads Lead To Wall Street", *Real Estate Forum* (May 1994), pp. 32-40.
"Financiële Gegevens Pensioenfondsen", *Verzekeringskamer* (1988), p. 3.
Fisher, F.G.: "Eurobonds", *Euromoney Publications* (1988).
Fox, Allen H.: "Securitization: Opening Real Estate to Public Scrutiny and Accountability", *Real Estate Finance* 10:2 (Summer 1993), pp. 38-42.
Fox, Leslie B.: "Profiting From Change in the Commercial Mortgage Capital Markets", *Commercial Assets* (June 1994).
Gann, Conrad G.: "Effects of Currency Hedging on the Expected Return and Volatility of Global Bond Portfolios", *Masschusetts Institute of Technology, Sloan School of Management* (M.Sc. Thesis, 1992).
Gardner, Robert J.: "The Causes and Consequences of Real Estate Investment Cycles", *Real Estate Finance* (Summer 1993), pp. 44-46.
Giliberto, Michael: "Commercial Mortgage-Backed Securities: Market Underpinnings", *Lehman Brothers* (June 1994).
Gordon, Jacques N.: "Commercial Mortgage-Backed Securities: Buy-Side Investment Research", *LaSalle Real Estate Advisory Services* (June 1994).
Gorlow, Robert M., David M. Parr and Louis W. Taylor: "The Securitization of Institutional Real Estate Investments", *Real Estate Review* (Spring 1993), pp.22-28.
Guenther, Daniel P. and Cari Turk: "Disposition Strategies in an Uncertain Market", *The Real Estate Finance Journal* (Fall 1993) pp. 4-12.
Hagan, Robert K.: "The Cumbersome RTC Bid Process", *Real Estate Review* (Summer 1993), pp. 63-69.
Henzler, Herbert A. and Lothar Späth: "Sind die Deutschen noch zu retten?" *Bertelsmann* (1993).

"Hooge Huys Hypotheekfonds - Introductiebericht tevens Prospectus", *MeesPierson* (23 September 1993).
Hoysradt, Jean E.: "Commercial Mortgage Securitization", *The Real Estate Handbook* (1989).
Jacob, David P. and Kimbell R. Duncan: "Commercial Mortgage-Backed Securities: An Emerging Market", *Nomura Mortgage Securities Research* (January 1994).
Jacob, David and Randy Zisler: "Real Estate, Inflation and Interest Rates", *Nomura Global Real Estate Research* (April 1994), p. 27.
Jacobson, Kenneth M.: "Acquiring and Financing Loan Portfolios", *Real Estate Review* (Spring 1994), pp. 21-26.
Jacobson, Kenneth M. and David L. Dlugie: "Balancing the Pain and the Gain: Lender Participation in Workouts", *Real Estate Review* (Spring 1993) pp. 32-36.
Jungman, Michael: "The Investor Market for Non-Performing Pool Securitizations", *JP Morgan* (June 1994).
Kane, Carl: "Property Securitization Survey 1993" *Kenneth Leventhal & Company* (1993).
Kelly, High F.: "1994 Real Estate Market Forecast", Landauer Real Estate Counselors (1994).
van Konynenburg, D. Michael and Sandra L. Tanen: "Selling Nonperforming Commercial Real Estate Loans", *The Real Estate Finance Journal* (Fall 1993) pp. 39-41.
Lachman, M. Leanne: "The Demographics of Demand", *Schroder Real Estate Associates* (Fall 1992).
Lawch, Richard S.: "Multifamily ACES", *Federal National Mortgage Association* (June 1994).
Levit, M.: "Real Estate Investment Trusts Sterk in Belangstelling van Beleggers", *Vastgoedmarkt & Amvabel nv* (6 August 1993), p. 27.
Libert, Jeffrey: "Mortgage Investors Corporation", *Harvard Business School*, case 9-389-027 (1988).
Lynford, Lloyd: "Too Much, Too Soon - Money is Rushing Blindly Back into Commercial Real Estate", *Barron's* (4 July, 1994), p. 40.
Lynford, Lloyd: "Investment Value Analysis of Selected Real Estate/Mortgage Assets", *The REIS Reports* (June 1994).
Maniscalco, Robert A. and Tanis Reed: "Equity Standby Commitments", *The Real Estate Finance Journal* (Fall 1993), pp. 35-38.
Mansfield, William G.: "Hedging International Bond Portfolios", *Masschusetts Institute of Technology, Sloan School of Management* (M.Sc. Thesis, 1990).
Mason, Scott P.: "Note on Bank Loans", *Harvard Business School*, Case 9-291-026 (1991).
Mason, Scott P.: "Note on the Pricing of Residential Mortgage-Backed Securities", *Harvard Business School*, Case 9-287-060 (1987).
McGough, Robert and Sara Calian: "Funds Pay Price for Mortgage Derivative Returns", *Wall Street Journal* (9 June 1994), pp. C1, C18.
Melis, Eric H.: "Dutch Pension Funds' Real Estate Investment Policies", *Nijenrode, The Netherlands Business School* (MBA Thesis, 1990).
Miller, Jonathan D.: "Capital Sources", *Emerging Trends in Real Estate* (1994).
Miller Blew, J.: "Securitized Commercial Real Estate Lending", *Harvard Graduate School of Design* (1994).
Modigliani, Franco and Frank Fabozzi: "Mortgage and Mortgage-Backed Securities Markets", *Harvard Business School Press* (1992).

"Mortgage Collateral Notes Due November 1, 2000 of Pacific Acquisition Corporation", *Lehman Brothers* (November 1, 1993).
Myers, Stewart C. and Richard A. Brealey: "Principles of Corporate Finance" *McGraw-Hill* (1991), p. 860.
"New England Mutual Life Insurance Co., Series 1993-1" *Fitch Research* (11 April 1994).
"Pacific Acquisition Corporation", *Lehman Brothers* (November 1, 1994).
Perry, Harold W.: "Commercial Mortgage Securitization - An Overview", *Real Estate Issues* (April 1994), pp. 7-12.
Pinover, Eugene A. and David E. Rabin: "Current Trends in Loan Restructurings", *The Real Estate Finance Journal* (Winter 1994), pp. 49-53.
Poorvu, William J.: "Note on Commercial Space Leases", *Harvard Business School*, Case 9-390-007 (1989).
Postma, A.J.: "Fiscale Wetgeving VS Geeft Opnieuw Reden tot Zorg", *Financieel Dagblad* (9 September 1993).
Pratt, Richard T. and John A. Scrowcroft: "The Secondary Mortgage Market", *The Real Estate Handbook* (1989).
President and Fellows of Harvard College: "Fidelity Management Research Company: The Mortgage Securities Fund", *Harvard Business School*, Case 9-190-024 (1989).
President and Fellows of Harvard College: "CSFB and the International Capital Markets", *Harvard Business School*, Case 9-290-029 (1990).
President and Fellows of Harvard College: "A Note on the Pricing of Mortgage-Backed Securities", *Harvard Business School*, Case 9-287-060 (1987).
"Protocol Amending the Convention Between The Kingdom of The Netherlands and The United States of America For The Avoidance Of Double Taxation And The Prevention Of Fiscal Income With Respect To Taxes On Income", *Royal Netherlands Embassey* (13 October 1993)
Quigg, Laura: "Commercial Mortgage-Backed Securities", Lehman Brothers (December 1993).
Quigg, Laura: "Commercial Mortgage-Backed Securities Market Update", *Lehman Brothers Fixed Income Research* (July 1, 1994).
Rompelman, Dick: "VastGoedMarkt Special Verenigde Staten", *VastGoedMarkt* (6 August 1993).
Rompelman, Dick: "VastGoedMarkt Special Verenigde Staten", *VastGoedMarkt* (5 August 1994).
Rompelman, Dick: "VastGoedMarkt Profiel 1994-1995, Wegwijzer in de Wereld van Bedrijfsmatig Onroerend Goed", *VastGoedMarkt* (June 1994).
Rosen, Robert C., Paul Saint Pierre and Jeffrey B. Tevis: "Looking Back on a Decade of Change: 1994-2004", *Real Estate Finance* (Fall 1993), pp. 41-48.
Sahling, Leonard G.: "Commercial Real Estate Today - Half Full or Half Empty?", *The Real Estate Finance Journal* (Fall 1993), pp. 18-23.
Sahling, Leonard G.: "Managing the Cleanup of the Thrift Crisis" *Real Estate Review* (Winter 1993).
Sanders, Saul I.: "Multifamily/Commercial Mortgage Conduit Opportunities, Obstacles and Developments", *Citicorp Securities* (June 27, 1994).
Schechner, Sheridan: "Real Estate Securitization", *Goldman, Sachs & Co.* (June 1994).
Shilton, Leon: "The Eight Myths of Office Forecasting", *The Real Estate Finance Journal* (Winter 1994), pp. 67-72.

"Smartnotes - Combining Characteristics of Both Equity and Fixed-Income Investing", *Merrill Lynch & Co.* (19 March 1993).
Smith, Daniel J.: "The Analysis of Distressed Commercial Real Estate", *Duff & Phelps Credit Rating Co.* (September 1992).
Smith, Donald J. and F. Mark d'Annolfo: "Collateralized Mortgage Obligations: An Introduction", *Real Estate Review*, pp. 30-42.
Snyderman, Mark P.: "Update on Commercial Mortgage Defaults", *The Real Estate Finance Journal* (Summer 1994), pp. 22-32.
Sperantsas, Dean: "Workout Strategies for Distressed Properties", *Massachusetts Institute of Technology, Center for Real Estate* (M.Sc. Thesis, 1987).
Stein, Joshua: "Mortgage Loan Structures for the 1990s", *Real Estate Review* (Spring 1994), pp. 15-20.
Swartz, Jerry: "Commercial Mortgage-Backed Securities Riding for a Fall?", *Real Estate Weekly* (18 May 1994), p.17.
"The CSFB Guide to Innovations, Structures and Terms of the Eurobond Markets", *Credit Suisse First Boston & Probus Publishing Company, Chicago* (1988).
Tull, Donald S. and Del I. Hawkins: "Marketing Research: Measurement and Methods", *MacMillan Publishing Company, New York* (1984), p. 387.
Tweede Kamer der Staten-Generaal: "Goedkeuring van de op 18 December 1992 te Washington tot stand gekomen Overeenkomst tussen het Koninkrijk der Nederlanden en de Verenigde Staten van Amerika tot het vermijden van dubbele belasting en het voorkomen van het ontgaan van belasting met betrekking tot belastingen naar inkomen, met briefwisseling en Memorandum van overeenstemming", *23220, nr.3* (Vergaderjaar 1992-1993), p. 26.
"1211 Finance Corporation", *Lehman Brothers* (10 November 1993).
Vogel, Thomas T.: "First The Movies and Now Bonds: S&P Prepares To Assign "R" Rating to an Array of Risky Issues", *The Wall Street Journal* (7 July 1994), pp C1 and C19, Column 1.
Waisterlain, Mitch: "Whole Loan Securitization", *ING Capital* (1994).
Waters, Richard: "Residential Mortgage-Backed Securities: No Longer as Safe as Houses" *Financial Times* (22 July 1994), p. 13.
Wechsler, Ron J., Janet P. Forst and Harvey M. Lederman: "Commercial Mortgage Stress Test", *Fitch Structured Finance* (June 8, 1992).
Wheaton, William C.: "The U.S. Real Estate Market: An Economic Outlook for the 1990s", *Massachusetts Institute of Technology, Center for Real Estate* (1994).
Wurtzebach, Charles H.: "Asset Allocation and Commercial Mortgage-Backed Securities", *JMB Institutional Realty Corporation* (June 1994).
Zawierka, Paul: "The Credit Suisse First Boston Guide to Innovations, Structures & Terms of the Eurobond Markets", *Probus Publishing Company* (1988).
Zinngrade, Claude J.: "Real Estate Investment by Insurance Companies - How Risk-based Capital Requirements Affect It", *Urban Land* (March 1994).
Zisler, Randall: "Where Do Commercial Mortgages Fit in a Plan Sponsor's Asset Allocation Decision?", *Nomura Fixed Income Research* (June 1994).